

Algebra

Trinomial in the form : $(x^2 + bx + c)$

- $x^2 + 7x + 12 = (x + 3)(x + 4)$
Their product = 12
Their sum = 7

- $x^2 + x - 12 = (x + 4)(x - 3)$
Their product = -12
Their sum = 1

Trinomial in the form : $(ax^2 + bx + c)$

- $6x^2 + 7x + 2$

Their product = 6 Their product = 2
 $= (2x + 1)(3x + 2)$

- $36x^3 - 84x^2 - 15x = 3x(12x^2 - 28x - 5)$
 $= 3x(6x + 1)(2x - 5)$

Method of scissors

$$\begin{array}{c} (2x+1) \\ \times \\ (3x+2) \end{array}$$

$$\begin{array}{c} (6x+1) \\ \times \\ (2x-5) \end{array}$$

Perfect square trinomial :

- $a^2 + 2ab + b^2 = (a + b)^2$
- $a^2 - 2ab + b^2 = (a - b)^2$

- $x^2 + 10x + 25 = (x + 5)^2$

- $9x^2 - 24xy + 16y^2 = (3x - 4y)^2$

- $4x^2 - 10x + 25$ is not a perfect square because :

the middle term $\neq \pm 2 \times \sqrt{4x^2} \times \sqrt{25}$

- $16a^2 - 24a - 9$ is not a perfect square because the third term is negative.

- $12b^2 - 16b + 4$ is not a perfect square because the first term ($12b^2$) is not a perfect square.

In the perfect square trinomial

- Each of the first term and the third term is a perfect square and its sign is positive.

- The middle term

$$= \pm 2 \times \sqrt{\text{the first term}} \times \sqrt{\text{the third term}}$$

Difference between two squares : $a^2 - b^2 = (a + b)(a - b)$

- $x^2 - 9 = (x + 3)(x - 3)$

- $16x^4 - 81 = (4x^2 + 9)(4x^2 - 9) = (4x^2 + 9)(2x + 3)(2x - 3)$

Notice : We continue in factorizing to be completely.

- $2x^3 - 72x = 2x(x^2 - 36) = 2x(x + 6)(x - 6)$

Notice : We take out the H.C.F. firstly.

1 Choose the correct answer from the given ones :

(1) If $a - b = 3$, then $6a - 6b = \dots$
 (a) 2 (b) 9 (c) 18 (d) 3

(2) The expression : $x^2 - x - a$ can be factorized if $a = \dots$
 (a) 3 (b) 4 (c) 5 (d) 6

(3) $x^2 - x - 12 = \dots$
 (a) $(x - 3)(x + 4)$ (b) $(x - 3)(x - 4)$
 (c) $(x + 3)(x - 4)$ (d) $(x - 6)(x + 2)$

(4) If $x^2 - 2x - k = (x + 3)(x - 5)$, then $k = \dots$
 (a) -2 (b) -8 (c) 15 (d) 2

(5) If $x - y = 3$, $x - 2y = 5$, then $x^2 - 3xy + 2y^2 = \dots$
 (a) 15 (b) 8 (c) 2 (d) -2

(6) Two numbers their product is 12 and their sum is -7 are
 (a) -4, 3 (b) -3, 4 (c) -3, -4 (d) 3, 4

2 Choose the correct answer from the given ones :

(1) If $x^2 + ax - 13 = (x + 1)(x - 13)$, then $a = \dots$
 (a) zero (b) 25 (c) -12 (d) 12

(2) $x^2 + 7x + c$ can be factorized if $c = \dots$
 (a) 12 (b) -12 (c) 17 (d) 9

(3) The number which can be added to the expression : $2x^2 + 5x - 10$ to be factorized is
 (a) -1 (b) -2 (c) -3 (d) -4

(4) If $2x^2 + cx - 3 = (2x - 1)(x + 3)$, then $c = \dots$
 (a) 5 (b) -5 (c) 7 (d) -7

(5) $6x^2 - 7x - 3 = \dots$
 (a) $(3x - 1)(2x - 3)$ (b) $(3x + 1)(2x - 3)$
 (c) $(3x + 1)(2x + 3)$ (d) $(3x - 1)(2x + 3)$

(6) The rectangle whose area is $(2x^2 - 3x - 5)$ cm² and one of its dimensions is $(x + 1)$ cm., the second dimension is cm.
 (a) $(x - 5)$ (b) $(2x - 5)$ (c) $(2x + 5)$ (d) $(2x - 3)$

1 Choose the correct answer from the given ones :

- (1) If $X^2 + kX + 16$ is a perfect square , then $k = \dots$
 - (a) 4
 - (b) ± 4
 - (c) ± 8
 - (d) 1
- (2) If $X^2 - 2XY + Y^2 = 25$, then $X - Y = \dots$
 - (a) 25
 - (b) -5
 - (c) 5
 - (d) ± 5
- (3) $5X^2 - 8XY - 4Y^2 = \dots$
 - (a) $(5X + 2Y)(X - 2Y)$
 - (b) $(5X - 2Y)(X + 2Y)$
 - (c) $(5X - 4Y)(X + Y)$
 - (d) $(X - 4Y)(5X + Y)$
- (4) If a $X^2 + 40X + 16$ is a perfect square , then a = \dots
 - (a) 15
 - (b) 16
 - (c) 4
 - (d) 25
- (5) If $(X + 1)$ is a factor of the expression : $5X^2 - 2X - 7$, then the other factor is \dots
 - (a) $(5X - 7)$
 - (b) $(5X + 7)$
 - (c) $(X + 7)$
 - (d) $(X - 7)$
- (6) If $X = 2$, $Y = 4$, then $X^2 + 2XY + Y^2 = \dots$
 - (a) 2
 - (b) 4
 - (c) 6
 - (d) 36

1 Choose the correct answer from the given ones :

- (1) If $X^2 - Y^2 = 16$, $X + Y = 8$, then $X - Y = \dots$
 - (a) 2
 - (b) 1
 - (c) 128
 - (d) 64
- (2) If the expression : $X^2 + 7X + k$ can be factorized , then $k = \dots$
 - (a) 16
 - (b) -12
 - (c) 30
 - (d) 6
- (3) The expression : $4X^2 + k + 25Y^2$ is a perfect square when $k = \dots$
 - (a) 20
 - (b) $10XY$
 - (c) $20XY$
 - (d) $\pm 20XY$
- (4) If $a + b = 8$, $b - a = -5$, then $a^2 - b^2 = \dots$
 - (a) -40
 - (b) 40
 - (c) 13
 - (d) -13
- (5) $X^2 - \dots = (X - 7)(X + 7)$
 - (a) 7
 - (b) 49
 - (c) -49
 - (d) -7
- (6) If $X^2 + 2XY + Y^2 = 9$, then $X + Y = \dots$
 - (a) 9
 - (b) 3
 - (c) ± 3
 - (d) ± 9

Choose the correct answer :

1.	If $a - b = 3$, then $6a - 6b = \dots$	(a) 2	(b) 9	(c) 18	(d) 3
2.	The expression $x^2 - x - a$ can be factorized if $a = \dots$	(a) 3	(b) 4	(c) 5	(d) 6
3.	If $x^2 - 2x - k = (x + 3)(x - 5)$, then $k = \dots$	(a) -2	(b) -8	(c) 15	(d) 2
4.	The expression $x^2 - 3x + c$ can be factorized when $c = \dots$	(a) 1	(b) 2	(c) 4	(d) 6
5.	If the expression $x^2 + bx - 10$ can be factorized, then b may be \dots	(a) 3	(b) 2	(c) 1	(d) -1
6.	The number which can be added to the expression $x^2 - 11x + 15$ to be factorized is \dots	(a) 1	(b) 2	(c) 3	(d) 4
7.	If $x - y = 3$, $x - 2y = 5$, then $x^2 - 3xy + 2y^2 = \dots$	(a) 15	(b) 8	(c) 2	(d) -2
8.	The expression $x^2 + 7x + a$ can be factorized if $a = \dots$	(a) 8	(b) 10	(c) 18	(d) 49
9.	For the expression $x^2 - x - k$ can be factorized then $k \neq \dots$	(a) 12	(b) 30	(c) 6	(d) 8
10.	If the expression $x^2 + ax + 2$ can be factorized, then a may be \dots	(a) 1	(b) 2	(c) 3	(d) 4
11.	If the expression $x^2 - cx + 12$ can be factorized, then c may be \dots	(a) -1	(b) 4	(c) 7	(d) 1
12.	The number which can be added to the expression $x^2 - 8x + 5$ to be factorized is \dots	(a) 1	(b) 2	(c) 4	(d) 5

Choose the correct answer :

1. If $x^2 + ax - 13 = (x + 1)(x - 13)$, then $a = \dots$
 (a) zero (b) 25 (c) -12 (d) 12

2. $x^2 + 7x + c$ can be factorized if $c = \dots$
 (a) 12 (b) -12 (c) 17 (d) 9

3. The number which can be added to the expression : $2x^2 + 5x - 10$ to be factorized is \dots
 (a) -1 (b) -2 (c) -3 (d) -4

4. If $2x^2 - cx - 3 = (2x - 1)(x + 3)$, then $c = \dots$
 (a) 5 (b) -5 (c) 7 (d) -7

5. $6x^2 - 7x - 3 = \dots$
 (a) $(3x - 1)(2x - 3)$ (b) $(3x + 1)(2x - 3)$
 (c) $(3x + 1)(2x + 3)$ (d) $(3x - 1)(2x + 3)$

6. The rectangle whose area is $(2x^2 - 3x - 5)$ cm² and one of its dimensions is $(x + 1)$ cm., the second dimension is \dots cm.
 (a) $(x - 5)$ (b) $(2x - 5)$ (c) $(2x + 5)$ (d) $(2x - 3)$

Choose the correct answer :

1. If $x^2 + kx + 16$ is a perfect square, then $k = \dots$
 (a) 4 (b) ± 4 (c) ± 8 (d) 1

2. If $x^2 - 2xy + y^2 = 25$, then $x - y = \dots$
 (a) 25 (b) -5 (c) 5 (d) ± 5

3. $5x^2 - 8xy - 4y^2 = \dots$
 (a) $(5x + 2y)(x - 2y)$ (b) $(5x - 2y)(x + 2y)$
 (c) $(5x - 4y)(x + y)$ (d) $(x - 4y)(5x + y)$

4. If $a^2 + b^2 = 11$, $ab = 5$, then $a - b = \dots$
 (a) 6 (b) ± 1 (c) 1 (d) -1

5. The value of c which makes the expression $cx^2 + 10x + 1$ a perfect square is \dots
 (a) 25 (b) 10 (c) 9 (d) 5

6. If $x = 6$, $y = 4$, then $x^2 - 2xy + y^2 = \dots$
 (a) 2 (b) 4 (c) 10 (d) 100

7. The expression : $a x^2 - 40x + 25$ is a perfect square when $a = \dots$
 (a) 2 (b) 4 (c) 9 (d) 16

8. If $x^2 + kx + 25$ is a perfect square, then $k = \dots$
 (a) 5 (b) 10 (c) ± 10 (d) ± 5

9. If the expression $x^2 + ax + 16$ is a perfect square, then $a = \dots$
 (a) zero (b) ± 16 (c) ± 4 (d) ± 8

10. If the expression $x^2 + 14x + b$ is a perfect square, then $b = \dots$
 (a) 2 (b) 7 (c) 14 (d) 49

11. The value of k which makes the expression $16x^2 - 24x + k$ a perfect square is \dots
 (a) 6 (b) 9 (c) 12 (d) 24

12. The expression $a x^2 - 40x + 25$ is a perfect square when $a = \dots$
 (a) 2 (b) 4 (c) 9 (d) 16

13. If the expression $c + 3x + \frac{1}{4}$ is a perfect square, then $c = \dots$
 (a) 9 (b) $\frac{9}{4}x^2$ (c) $9x^2$ (d) $4x^2$

Choose the correct answer :

1. If $x^2 - a = (x - 3)(x + 3)$, then $a = \dots$
 (a) 3 (b) -3 (c) 9 (d) -9
2. If $x^2 + l - 4 = (x - 2)(x + 2)$, then $l = \dots$
 (a) zero (b) 2 (c) 4 (d) 8
3. If $a - b = 7$, $a + b = 5$, then $2a^2 - 2b^2 = \dots$
 (a) 2 (b) 12 (c) 35 (d) 70
4.  If $x^2 - y^2 = 16$, $y - x = 2$, then $x + y = \dots$
 (a) 4 (b) 8 (c) -8 (d) 2
5. If $(25)^2 - (15)^2 = 10x$, then $x = \dots$
 (a) 40 (b) 30 (c) 20 (d) 10
6. $(x - y)(x + y)(x^4 - 2x^2y^2 + y^4) = \dots$
 (a) $x^6 - y^6$ (b) $(x - y)^3(x + y)^3$
 (c) $(x^3 - y^3)(x^3 + y^3)$ (d) $(x^2 + y^2)(x^2 - y^2)$
7. If $a + b = 8$, $b - a = -5$, then $a^2 - b^2 = \dots$
 (a) -40 (b) 40 (c) 13 (d) -13
8. If $x + 2y = 3$, $x^2 - 4y^2 = 21$, then $x - 2y = \dots$
 (a) 14 (b) 9 (c) 7 (d) 6
9. If $x^2 - y^2 = 24$, $x + y = 8$, then $3x - 3y = \dots$
 (a) $\frac{1}{3}$ (b) 3 (c) 9 (d) 16
10. If $a + b = 5$, $a - b = 4$, then $b^2 - a^2 = \dots$
 (a) -20 (b) -1 (c) 9 (d) 20
11. If $x^2 - y^2 = 16$, $x + y = 8$, then $x - y = \dots$
 (a) 2 (b) 1 (c) 128 (d) 64

12.

If the expression : $x^2 + 7x + k$ can be factorized , then $k = \dots$

(a) 16 (b) -12 (c) 30 (d) 6

13.

The expression : $4x^2 + k + 25y^2$ is a perfect square when $k = \dots$

(a) 20 (b) $10xy$ (c) $20xy$ (d) $\pm 20xy$

14.

$x^2 - \dots = (x - 7)(x + 7)$

(a) 7 (b) 49 (c) -49 (d) -7

15.

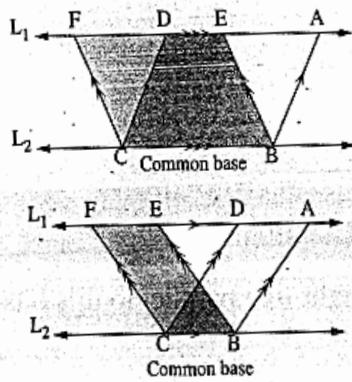
If $x^2 + 2xy + y^2 = 9$, then $x + y = \dots$

(a) 9 (b) 3 (c) ± 3 (d) ± 9

Geometry

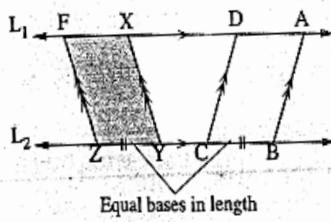
Remember that:

Surfaces of two parallelograms with common base and between two parallel straight lines , one is carrying this base , are equal in area.



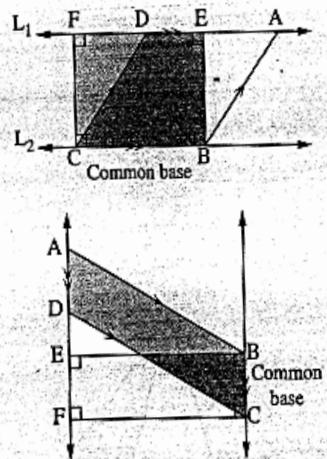
If $\overleftrightarrow{AF} \parallel \overleftrightarrow{BC}$, \overleftrightarrow{BC} is a common base , then :
The area of $\square ABCD$ = the area of $\square EBCF$

The parallelograms with bases equal in length and lying on a straight line , while the opposite sides to these bases are on another straight line , are equal in area.



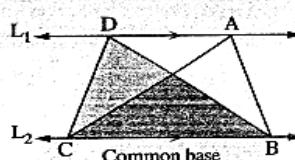
If $\overleftrightarrow{AF} \parallel \overleftrightarrow{BZ}$, $BC = YZ$, then :
The area of $\square ABCD$ = the area of $\square XYZF$

The parallelogram and the rectangle with common base and between two parallel straight lines are equal in area.



If $\overleftrightarrow{AF} \parallel \overleftrightarrow{BC}$, \overleftrightarrow{BC} is a common base , then :
The area of $\square ABCD$ = the area of rectangle EBCF

Two triangles which have the same base and the vertices opposite to this base on a straight line parallel to the base have the same area.

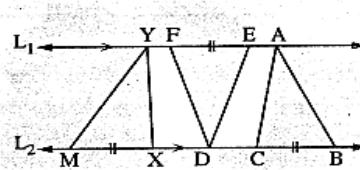


If $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$, \overleftrightarrow{BC} is a common base, then :
The area of $\triangle ABC$ = the area of $\triangle DBC$

Notice that

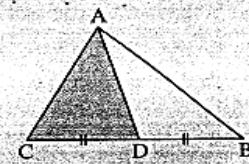
If two triangles are equal in area and drawn on the same base and on one side of it, then their vertices lie on a straight line parallel to this base.

Triangles of bases equal in length and lying between two parallel straight lines are equal in area.



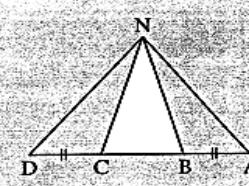
If $\overleftrightarrow{L_1} \parallel \overleftrightarrow{L_2}$, $BC = EF = XM$, then :
The area of $\triangle ABC$ = the area of $\triangle DEF$ = the area of $\triangle YXM$

The median of a triangle divides its surface into two triangular surfaces equal in area.



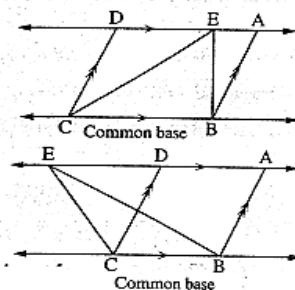
If \overleftrightarrow{AD} is a median in $\triangle ABC$, then :
The area of $\triangle ABD$ = the area of $\triangle ACD$ = $\frac{1}{2}$ the area of $\triangle ABC$

Triangles with congruent bases on one straight line and have a common vertex are equal in areas.



If $\triangle ABN$, $\triangle DCN$ are common in the vertex N, \overleftrightarrow{AB} and \overleftrightarrow{CD} are on the same straight line, $AB = CD$, then :
The area of $\triangle ABN$ = the area of $\triangle CDN$

Area of a triangle is equal to half of area of a parallelogram if they have a common base lying on one of two parallel straight lines including them.



If $E \in \overleftrightarrow{AD}$, $\overleftrightarrow{AD} \parallel \overleftrightarrow{BC}$, \overleftrightarrow{BC} is a common base, then : The area of $\triangle BEC$ = $\frac{1}{2}$ the area of $\square ABCD$

1 Choose the correct answer from the given ones :

(1) If the area of a parallelogram is 40 cm^2 and its base length is 5 cm. , then the corresponding height to this base = cm.

(a) 16 (b) 8 (c) 200 (d) 5

(2) The lengths of two adjacent sides in a parallelogram are 5 cm. and 7 cm. and its smaller height is 4 cm. , then its area = cm^2

(a) 20 (b) 10 (c) 28 (d) 14

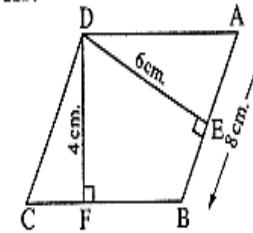
(3) If the area of a parallelogram is 24 cm^2 and its height is 60 mm. , then the length of the corresponding base is

(a) 5 cm. (b) 4 cm. (c) 6 cm. (d) 0.4 cm.

(4) In the opposite figure :

Area of $\square ABCD =$ cm^2

(a) 48 (b) 24 (c) 32 (d) 36



1 Choose the correct answer from the given ones :

(1) The base length of a parallelogram is 12 cm. and its area = 60 cm^2 , then the corresponding height to this base = cm.

(a) 2 (b) 5 (c) 4 (d) 6

(2) The area of the parallelogram the area of the triangle which has the same base and is included with it between two parallel straight lines.

(a) equal (b) quarter (c) twice (d) half

(3) The triangle whose height = 9 cm. and its base equals 6 cm. long, its area = cm^2

(a) 18 (b) 54 (c) 13.5 (d) 27

(4) A parallelogram , the lengths of two adjacent sides in it are 6 cm. and 8 cm. and its greatest height is 5 cm. , its area = cm^2

(a) 40 (b) 30 (c) 48 (d) 24

1 Choose the correct answer from the given ones :

(1) In the opposite figure :

If the area of $\triangle ABC = 100 \text{ cm}^2$

, D is the midpoint of \overline{BC} , E is the midpoint of \overline{AD}

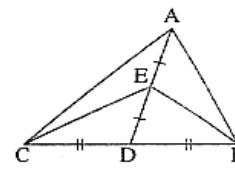
, then the area of $\triangle EBC = \dots \text{ cm}^2$

(a) 75

(b) 50

(c) 25

(d) 35



(2) The ratio between the area of a triangle and the area of a parallelogram with common base and between two parallel straight lines =

(a) 1 : 2

(b) 1 : 3

(c) 2 : 1

(d) 2 : 3

(3) The area of the right-angled triangle whose right angle sides are of length 6 cm. and 9 cm. equals cm^2

(a) 54

(b) 108

(c) 27

(d) 18

(4) If ABCD is a parallelogram in which : $AB = 5 \text{ cm.}$, $BC = 10 \text{ cm.}$ and its smallest height is 3 cm. , then its greatest height = cm.

(a) 5

(b) 50

(c) 15

(d) 6

Choose the correct answer :

1.	If the base length of a parallelogram is 7 cm. and the corresponding height is 4 cm. , then its area =			
	(a) 11 cm^2	(b) 14 cm^2	(c) 22 cm^2	(d) 28 cm^2
2.	If the area of a parallelogram is 35 cm^2 and its height is 5 cm. , then the length of the corresponding base is			
	(a) 5 cm.	(b) 7 cm.	(c) 9 cm.	(d) 30 cm.
3.	If ABCD is a parallelogram in which , $AB = 5 \text{ cm.}$, $BC = 10 \text{ cm.}$ and its smaller height is 4 cm. , then its greater height =			
	(a) 2 cm.	(b) 4 cm.	(c) 8 cm.	(d) 10 cm.
4.	A parallelogram whose area = 50 cm^2 and the length of its base equals twice the corresponding height , then this height =			
	(a) 50 cm.	(b) 25 cm.	(c) 10 cm.	(d) 5 cm.
5.	The ratio between the area of the parallelogram and the area of the triangle whose base is common and are included between two parallel straight lines =			
	(a) 1 : 2	(b) 1 : 3	(c) 2 : 1	(d) 2 : 3
6.	If the area of the triangle is 42 cm^2 and its height = 7 cm. , then the length of the corresponding base =			
	(a) 15 cm.	(b) 12 cm.	(c) 8 cm.	(d) 4 cm.

7. The area of a right-angled triangle in which the lengths of the sides of the right angle are 6 cm. and 9 cm. equals
 (a) 54 cm^2 (b) 60 cm^2 (c) 27 cm^2 (d) 15 cm^2

8. The area of the rectangle whose dimensions are 6 cm. and 4 cm. the area of the triangle whose base length is 12 cm. and the corresponding height is 4 cm.
 (a) < (b) > (c) = (d) ≠

9. If the area of a parallelogram is 50 cm^2 and its base length = 10 cm. , then the corresponding height of this base =
 (a) 500 cm. (b) 5 cm. (c) 250 cm. (d) 100 cm.

10. If the lengths of two adjacent sides of a parallelogram are 8 cm. and 10 cm. and its greater height is 5 cm. , then its area =
 (a) 80 cm^2 (b) 50 cm^2 (c) 40 cm^2 (d) 18 cm^2

11. The area of the triangle is the area of the parallelogram which has a common base with it and its vertex lies on the straight line parallel to this base.
 (a) equal to (b) half (c) twice (d) quarter

12. The area of the triangle = the base length \times the corresponding height.
 (a) 2 (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) $\frac{1}{3}$

13. If the base length of a triangle is 4 cm. and the corresponding height = 3 cm. , then its area =
 (a) 6 cm^2 (b) 12 cm^2 (c) 24 cm. (d) 34 cm^2

14. The triangle whose base length is 12 cm. and its area is 48 cm^2 , the corresponding height =
 (a) 3 cm. (b) 4 cm. (c) 6 cm. (d) 8 cm.

15. If ABCD is a parallelogram with area 100 cm^2 and $E \in \overline{AD}$, then the area of ΔEBC =
 (a) 25 cm^2 (b) 50 cm^2 (c) 100 cm^2 (d) 200 cm^2

Choose the correct answer:

1) $x^2 - 11x + 18 = (x - 2)(x + \dots)$

a. 6 b. 9 c. -9

2) If $(x - 2)$ is a factor of the expression: $x^2 - 8x + 12$, then the other factor is

a. $(x + 6)$ b. $(x - 6)$ c. $(x - 3)$

3) If $x^2 - 2xy - 3y^2 = 7$, $x + y = 1$, then $x - 3y = \dots$

a. 7 b. 8 c. 6

4) If $(x + 2y) = 4$, and $(x - y) = 1$, then numerical value of the expression $x^2 + xy - 2y^2$ is

a. 5 b. 4 c. 3

5) If the expression: $x^2 + 7x + a$ can be factorized, then a may be equal to

a. 18 b. 10 c. 49

6) If the expression: $x^2 - 3x + c$, can be factorized, then c may be equal to

a. 1 b. 4 c. 2

7) The expression: $x^2 - x - m$ can be factorized, then $m \neq \dots$

a. 12 b. 30 c. 8

8) The expression: $x^2 + ax + 2$ can be factorized, then a may be equal to

a. 1 b. 2 c. 3



9) The expression: $x^2 + b x - 10$ can be factorized, then b may be equal to

a. 9 b. 2 c. 3

10) If $(x + 1)$ is a factor of the expression: $5x^2 - 2 x - 7$, then the other factor is

a. $(5x + 7)$ b. $(5x - 7)$ c. $(x - 7)$

11) If $(x + 2)$ is a factor of the expression: $3x^2 + 10 x + 8$, then the other factor is

a. $(3x + 4)$ b. $(3x - 6)$ c. $(3x - 4)$

12) If $(2x - 7)$ is a factor of the expression: $4x^2 - 8 x - 21$, then the other factor is

a. $(x + 3)$ b. $(2x - 3)$ c. $(2x + 3)$

13) If $x^2 + k x + 25$ is a perfect square, then $k =$

a. 5 b. ± 10 c. ± 5

14) If $x^2 + 14 x + b$ is a perfect square, then $b =$

a. 49 b. 7 c. 14

15) If $a x^2 - 40 x + 25$ is a perfect square, then $a =$

a. 9 b. 16 c. 8

16) If $k + 3 x + \frac{1}{4}$ is a perfect square, then $k =$

a. $4x^2$ b. 9 c. $9 x^2$

17) If $x = 6$, $y = 4$, then $x^2 - 2xy + y^2 =$

a. 4 b. 8 c. 10



18) If $x^2 + 2xy + y^2 = 25$, then $x + y = \dots$

a. 5 b. -5 c. ± 5

19) If $a^2 + 2ab + b^2 = 64$, then $a + b = \dots$

a. ± 8 b. -8 c. 8

20) If $x^2 - k = (x - 9)(x + 9)$, then $k = \dots$

a. 18 b. 81 c. -81

21) If $y^2 + a = (y - 7)(y + 7)$, then $a = \dots$

a. -49 b. 49 c. 14

22) If $x^2 + m - 4 = (x - 2)(x + 2)$, then $m = \dots$

a. 4 b. 8 c. 16

23) If $x + 2y = 3$, $x^2 - 4y^2 = 21$, then $x - 2y = \dots$

a. 7 b. 9 c. 2

24) If $a - b = 7$, $a + b = 5$, then $2a^2 - 2b^2 = \dots$

a. 35 b. 12 c. 70

25) If $x^2 - y^2 = 16$, $y - x = 2$, then $x + y = \dots$

a. 8 b. -8 c. 32

26) If $a + b = 5$, $a - b = 4$, then $b^2 - a^2 = \dots$

a. 20 b. 9 c. -20

27) If $(25)^2 - (15)^2 = 10x$, then $x = \dots$

a. $(x - y)(x + y)(x^4 - 2x^2y^2 + y^4) = \dots$

a. $(x^3 - y^3)(x^3 + y^3)$ b. $x^6 - y^6$ c. $(x - y)^3(x + y)^3$



28) If $a - b = 2$, $a + b = 3$, then $a^2 - b^2 = \dots$

29) $x^2 - y^2 = 20$, $x + y = 5$, then $x - y = \dots$

30) $a^2 - b^2 = 45$, $a - b = 5$, then $\sqrt{a + b} = \dots$

a. 9 b. 3 c. -3

31) If $x^2 - y^2 = 24$, $x + y = 8$, then $3x - 3y = \dots$

32) If $x^2 - y^2 = x + y$, then $x - y = \dots$

33) If $2(a - b)(a + b) = 18$, then $a^2 - b^2 = \dots$

a. 9 b. 16 c. 8

34) If $a + b = 7$ and $(a - b) = 14$, then $a^2 - b^2 = \dots$

a. 98 b. 28 c. 7

35) If $x^2 + 8x + b$ is a perfect square, then $b = \dots$

a. 4 **b. 8** **c. 16**

36) $4^x + 4^x + 4^x + 4^x = \dots$

a. 4 b. 4^x c. 4^{x+1}

37) If $(x - 1)$ is a factor of the expression: $x^2 - 4x + 3$, then the other factor is

a. $(x + 4)$ b. $(x - 3)$ c. $(x - 4)$



38) Surface of two parallelogram with common base and between two parallel straight line are

- a. perpendicular
- b. equal in area
- c. parallel

39) Parallelogram and With common base and between two parallel straight line are

- a. trapezium
- b. rhombus
- c. rectangle

40) The area of triangle isthe area of parallelogram which has a common base with it and its vertex lies on the straight line parallel to this base

- a. equal
- b. half
- c. twice

41) The area of triangle =

- a. base \times high
- b. $\frac{\text{base}}{\text{high}}$
- c. $\frac{1}{2} \times \text{base} \times \text{high}$

42) The area of parallelogram =

- a. base \times high
- b. $\frac{\text{base}}{\text{high}}$
- c. $\frac{1}{2} \times \text{base} \times \text{high}$

43) Base length of triangle =

- a. $\frac{\text{area}}{\text{high}}$
- b. $\frac{\text{area}}{\frac{1}{2} \times \text{high}}$
- c. area \times high

44) Area of parallelogram whose base length 9 cm and high 7 cm

- a. 63 cm²
- b. 31.5 cm²
- c. 21 cm²



45) Area of parallelogram 36 cm^2 and its base length 9cm find it's high

a. 162 cm b. 4 cm c. 324 cm

46) The area of parallelogram two adjacent side 6 cm and 9 cm and the greatest high 7 cm

a. 54 cm^2 b. 42 cm^2 c. 21 cm^2

47) The area of parallelogram two adjacent side 5 cm and 8 cm and the smallest high 3 cm

a. 12 cm^2 b. 15 cm^2 c. 24 cm^2

48) The area of triangle whose base length 8 cm and its high 4cm

a. 32 cm^2 b. 16 cm^2 c. 2 cm^2

49) The area of triangle 20 cm^2 and its high 8 cm find its base length

a. 5 cm b. 160 cm c. 2.5 cm

50) The area of triangle 96 cm^2 and its base length 8 cm find it's high

a. 768 cm b. 12 cm c. 24 cm

51) The number of altitudes in right angle triangle

a. 3 b. 1 c. 0

52) The number of axis of symmetry of equilateral triangle is

a. 2 b. 3 c. 0



53) The number of axis of symmetry of isosceles triangle is

- a. 0
- b. 3
- c. 1

54) The number of axis of symmetry of scalene triangle is

- a. 1
- b. 3
- c. 0

55) The number of axis of symmetry of parallelogram is

- a. 2
- b. 4
- c. 0

56) Three altitudes (high) of a acute angle triangle intersect at one pointtriangle

- a. inside
- b. outside
- c. at vertex of right angle

57) Three altitudes intersect atpoint

- a. one
- b. two
- c. zero

58) Three altitudes (high) of obtuse angle triangle intersect at one pointtriangle

- a. inside
- b. outside
- c. at vertex of right angle

59) Three altitudes (high) of right angle triangle intersect at one pointtriangle

- a. inside
- b. outside
- c. at vertex of right angle

60) Sum of two consecutive angles in parallelogram is...

- a. 360
- b. 180
- c. 90

61) In parallelogram each two opposite angle are

- a. parallel
- b. equal
- c. half



62) In parallelogram each two opposite side are and equal

a. parallel b. equal c. perpendicular

63) Sum of interior angle of triangle are

a. complementary b. supplementary a. equal

64) Sum of interior angle of parallelogram is

a. 90 b. 180 a. 360

65) In equilateral triangle all angles are equal each angle is

a. 180 b. 360 c. 60

66) In equilateral triangle measure of exterior angle is

a. 60 b. 180 c. 120

67) Area of rectangle = length \times

a. high b. width c. base

68) The ratio between area of parallelogram and area of rectangle

a. 1: 2 b. 2: 1 c. 1: 1

69) The ratio between area of parallelogram and area of triangle

a. 1: 2 b. 2: 1 c. 3: 1

70) The ratio between area of triangle and area of parallelogram

a. 1: 2 b. 2: 1 c. 3: 1



71) The area of a right angled triangle in which the length of the sides of right angle are 6 cm and 9 cm equal

a. 60 cm^2 b. 27 cm^2 c. 54 cm^2

72) If ABCD is a parallelogram with area 100 cm^2 and $E \in AB$ then the area of $\Delta EBC = \dots$

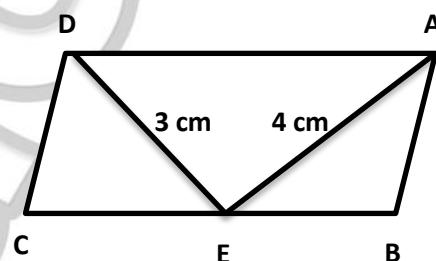
a. 25 cm^2 b. 60 cm^2 c. 50 cm^2

73) If area of ΔFBC is 40 cm^2 then area of parallelogram ABCD =

a. 20 cm^2 b. 80 cm^2 c. 60 cm^2

74) ABCD is a parallelogram, $AE = 4 \text{ cm}$, $ED = 3 \text{ cm}$, $m(\angle AED) = 90^\circ$ and $E \in BC$

$AE = 4 \text{ cm}$, $DE = 3 \text{ cm}$



1) Area of $\Delta AED = \dots \text{ cm}^2$

a. 12 b. 6 c. 7

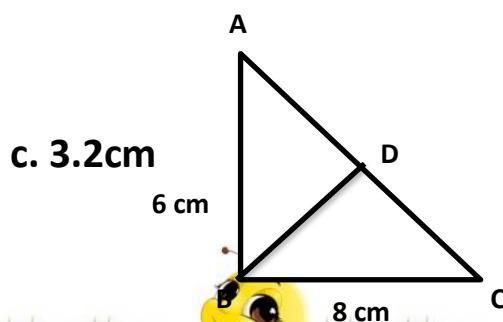
2) Area of ABCD = cm^2

a. 9 b. 19 c. 12

75) ΔABC is right at B, $D \in AC$, If $AB = 6 \text{ cm}$ and $BC = 8 \text{ cm}$

The length of BD

a. 10 cm b. 4.8 cm



c. 3.2 cm



76) Two triangles drawn on a common base and their vertices located

On a straight line parallel to the base are

- a. different
- b. equal in area
- c. twice

77) Triangle with congruent bases and drawn between two parallel lines are

- a. equal in area
- b. double
- c. different

78) The median in triangle divided its surface into two triangular

- a. half
- b. equal in area
- c. twice

79) If ABC is a triangle, D is the midpoint of BC , then the area of ΔABD equal of Δ

- a. ABC
- b. ACD
- c. DBA

80) If XL is median in ΔXYZ , then the area of ΔXYZ =area of ΔXYL

- a. half
- b. third
- c. twice

81) Two triangles have the same area and they are included between two straight lines then the two straight lines are

- a. perpendicular
- b. parallel
- c. intersect

82) In ΔABC , if D is the midpoint of BC, then the area of ΔABD = ...

The area of ΔABC

- a. Half
- b. double
- c. third

83) Triangle withbases on one straight line and have a common vertex are equal in area

- a. equal
- b. congruent
- c. parallel

84) Triangle with congruent bases on one straight line and have a commonare equal in area

a. width

b. high

c. vertex



85) If area of parallelogram ABCD 24 cm^2 , then the area of $\triangle ABE$

$$= \dots \text{cm}^2$$

a. 12

b. 6

c. 18

86) If AD is median in $\triangle ABC$, then area of $\triangle ABD$ = The area of $\triangle ABC$

a. $\frac{1}{2}$

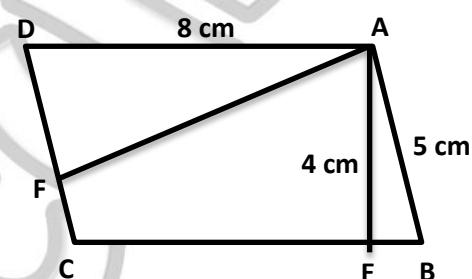
b. $\frac{1}{3}$

c. $\frac{1}{4}$

87) If ABCD is parallelogram

$AB = 5\text{cm}$, $AE = 4\text{ cm}$, $AD = 8\text{ cm}$

Then $AF = \dots \text{cm}$



a. 5.4

b. 3.2

c. 6.4

88) In the opposite figure

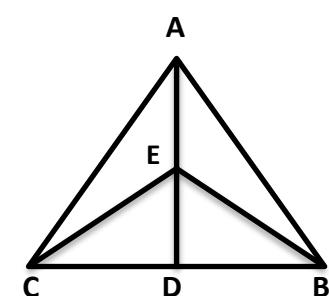
The area of $\triangle ABC = 100 \text{ cm}^2$

D is midpoint of BC, E is midpoint of AD

The area of $\triangle EBC$

a. 20 cm^2

b. 50 cm^2



c. 25 cm^2



Choose the correct answer:

1) $x^2 - 11x + 18 = (x - 2)(x + \dots)$

a. 6 b. 9 c. -9

2) If $(x - 2)$ is a factor of the expression: $x^2 - 8x + 12$, then the other factor is

a. $(x + 6)$ b. $(x - 6)$ c. $(x - 3)$

3) If $x^2 - 2xy - 3y^2 = 7$, $x + y = 1$, then $x - 3y = \dots$

a. 7 b. 8 c. 6

4) If $(x + 2y) = 4$, and $(x - y) = 1$, then numerical value of the expression $x^2 + xy - 2y^2$ is

a. 5 b. 4 c. 3

5) If the expression: $x^2 + 7x + a$ can be factorized, then a may be equal to

a. 18 b. 10 c. 49

6) If the expression: $x^2 - 3x + c$, can be factorized, then c may be equal to

a. 1 b. 4 c. 2

7) The expression: $x^2 - x - m$ can be factorized, then $m \neq \dots$

a. 12 b. 30 c. 8

8) The expression: $x^2 + ax + 2$ can be factorized, then a may be equal to

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9) The expression: $x^2 + b x - 10$ can be factorized, then b may be equal to

a. 9 b. 2 c. 3

10) If $(x + 1)$ is a factor of the expression: $5x^2 - 2 x - 7$, then the other factor is

a. $(5x + 7)$ b. $(5x - 7)$ c. $(x - 7)$

11) If $(x + 2)$ is a factor of the expression: $3x^2 + 10 x + 8$, then the other factor is

a. $(3x + 4)$ b. $(3x - 6)$ c. $(3x - 4)$

12) If $(2x - 7)$ is a factor of the expression: $4x^2 - 8 x - 21$, then the other factor is

a. $(x + 3)$ b. $(2x - 3)$ c. $(2x + 3)$

13) If $x^2 + k x + 25$ is a perfect square, then $k =$

a. 5 b. ± 10 c. ± 5

14) If $x^2 + 14 x + b$ is a perfect square, then $b =$

a. 49 b. 7 c. 14

15) If $a x^2 - 40 x + 25$ is a perfect square, then $a =$

a. 9 b. 16 c. 8

16) If $k + 3 x + \frac{1}{4}$ is a perfect square, then $k =$

a. $4x^2$ b. 9 c. $9 x^2$

17) If $x = 6, y = 4$, then $x^2 - 2xy + y^2 =$

a. 4 b. 8 c. 10



18) If $x^2 + 2xy + y^2 = 25$, then $x + y = \dots$

a. 5 b. -5 c. ± 5

19) If $a^2 + 2ab + b^2 = 64$, then $a + b = \dots$

a. ± 8 b. -8 c. 8

20) If $x^2 - k = (x - 9)(x + 9)$, then $k = \dots$

a. 18 b. 81 c. -81

21) If $y^2 + a = (y - 7)(y + 7)$, then $a = \dots$

a. -49 b. 49 c. 14

22) If $x^2 + m - 4 = (x - 2)(x + 2)$, then $m = \dots$

a. 4 b. 8 c. 16

23) If $x + 2y = 3$, $x^2 - 4y^2 = 21$, then $x - 2y = \dots$

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24) If $a - b = 7$, $a + b = 5$, then $2a^2 - 2b^2 = \dots$

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a. 8 b. -8 c. 32

26) If $a + b = 5$, $a - b = 4$, then $b^2 - a^2 = \dots$

a. 20 b. 9 c. -20

27) If $(25)^2 - (15)^2 = 10x$, then $x = \dots$

a. $(x - y)(x + y)(x^4 - 2x^2y^2 + y^4) = \dots$

a. $(x^3 - y^3)(x^3 + y^3)$ b. $x^6 - y^6$ c. $(x - y)^3(x + y)^3$



28) If $a - b = 2$, $a + b = 3$, then $a^2 - b^2 = \dots$

29) $x^2 - y^2 = 20$, $x + y = 5$, then $x - y = \dots$

30) $a^2 - b^2 = 45$, $a - b = 5$, then $\sqrt{a + b} = \dots$

b. 3

31) If $x^2 - y^2 = 24$, $x + y = 8$, then $3x - 3y = \dots$

a. 3 b. 9 c. 26

32) If $x^2 - y^2 = x + y$, then $x - y = \dots$

a. 9 b. 4 c. 1

33) If $2(a - b)(a + b) = 18$, then $a^2 - b^2 = \dots$

a. 9 b. 16 c. 8

34) If $a + b = 7$ and $(a - b) = 14$, then $a^2 - b^2 = \dots$

a. 98 b. 28 c. 7

35) If $x^2 + 8x + b$ is a perfect square, then $b = \dots$

a. 4 b. 8 c. 16

36) $4^x + 4^x + 4^x + 4^x = \dots$

a. 4 b. 4^x c. 4^{x+1}

37) If $(x - 1)$ is a factor of the expression: $x^2 - 4x + 3$, then the other factor is

a. $(x + 4)$ b. $(x - 3)$ c. $(x - 4)$



38) Surface of two parallelogram with common base and between two parallel straight line are

a. perpendicular b. equal in area c. parallel

39) Parallelogram and With common base and between two parallel straight line are

a. trapezium b. rhombus c. rectangle

40) The area of triangle isthe area of parallelogram which has a common base with it and its vertex lies on the straight line parallel to this base

a. equal b. half c. twice

41) The area of triangle =

a. base \times high b. $\frac{\text{base}}{\text{high}}$ c. $\frac{1}{2} \times \text{base} \times \text{high}$

42) The area of parallelogram =

a. base \times high b. $\frac{\text{base}}{\text{high}}$ c. $\frac{1}{2} \times \text{base} \times \text{high}$

43) Base length of triangle =

a. $\frac{\text{area}}{\text{high}}$ b. $\frac{\text{area}}{\frac{1}{2} \times \text{high}}$ c. area \times high

44) Area of parallelogram whose base length 9 cm and high 7 cm

a. 63 cm^2 b. 31.5 cm^2 c. 21 cm^2



45) Area of parallelogram 36 cm^2 and its base length 9cm find it's high

a. 162 cm b. 4 cm c. 324 cm

46) The area of parallelogram two adjacent side 6 cm and 9 cm and the greatest high 7 cm

a. 54 cm^2 b. 42 cm^2 c. 21 cm^2

47) The area of parallelogram two adjacent side 5 cm and 8 cm and the smallest high 3 cm

a. 12 cm^2 b. 15 cm^2 c. 24 cm^2

48) The area of triangle whose base length 8 cm and its high 4cm

a. 32 cm^2 b. 16 cm^2 c. 2 cm^2

49) The area of triangle 20 cm^2 and its high 8 cm find its base length

a. 5 cm b. 160 cm c. 2.5 cm

50) The area of triangle 96 cm^2 and its base length 8 cm find it's high

a. 768 cm b. 12 cm c. 24 cm

51) The number of altitudes in right angle triangle

a. 3 b. 1 c. 0

52) The number of axis of symmetry of equilateral triangle is

a. 2 b. 3 c. 0



53) The number of axis of symmetry of isosceles triangle is

a. 0 b. 3 c. 1

54) The number of axis of symmetry of scalene triangle is

a. 1 b. 3 c. 0

55) The number of axis of symmetry of parallelogram is

a. 2 b. 4 c. 0

56) Three altitudes (high) of a acute angle triangle intersect at one pointtriangle

a. inside b. outside c. at vertex of right angle

57) Three altitudes intersect atpoint

a. one b. two c. zero

58) Three altitudes (high) of obtuse angle triangle intersect at one pointtriangle

a. inside b. outside c. at vertex of right angle

59) Three altitudes (high) of right angle triangle intersect at one pointtriangle

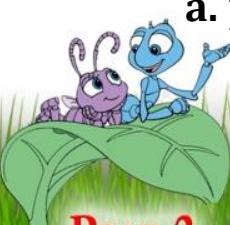
a. inside b. outside c. at vertex of right angle

60) Sum of two consecutive angles in parallelogram is...

a. 360 b. 180 c. 90

61) In parallelogram each two opposite angle are

a. parallel b. equal c. half



62) In parallelogram each two opposite side are and equal

a. parallel b. equal c. perpendicular

63) Sum of interior angle of triangle are

a. complementary b. supplementary a. equal

64) Sum of interior angle of parallelogram is

a. 90 b. 180 a. 360

65) In equilateral triangle all angles are equal each angle is

a. 180 b. 360 c. 60

66) In equilateral triangle measure of exterior angle is

a. 60 b. 180 c. 120

67) Area of rectangle = length \times

a. high b. width c. base

68) The ratio between area of parallelogram and area of rectangle

a. 1: 2 b. 2: 1 c. 1: 1

69) The ratio between area of parallelogram and area of triangle

a. 1: 2 b. 2: 1 c. 3: 1

70) The ratio between area of triangle and area of parallelogram

a. 1: 2 b. 2: 1 c. 3: 1



71) The area of a right angled triangle in which the length of the sides of right angle are 6 cm and 9 cm equal

a. 60 cm^2 b. 27 cm^2 c. 54 cm^2

72) If ABCD is a parallelogram with area 100 cm^2 and $E \in AB$ then the area of $\Delta EBC = \dots$

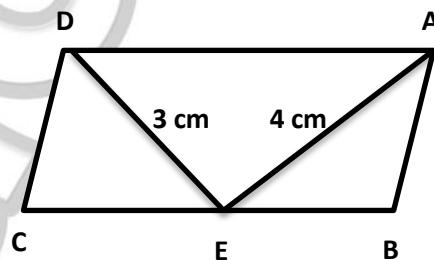
a. 25 cm^2 b. 60 cm^2 c. 50 cm^2

73) If area of ΔFBC is 40 cm^2 then area of parallelogram ABCD =

a. 20 cm^2 b. 80 cm^2 c. 60 cm^2

74) ABCD is a parallelogram, $AE = 4 \text{ cm}$, $ED = 3 \text{ cm}$, $m(\angle AED) = 90^\circ$ and $E \in BC$

$AE = 4 \text{ cm}$, $DE = 3 \text{ cm}$



1) Area of $\Delta AED = \dots \text{ cm}^2$

a. 12 b. 6 c. 7

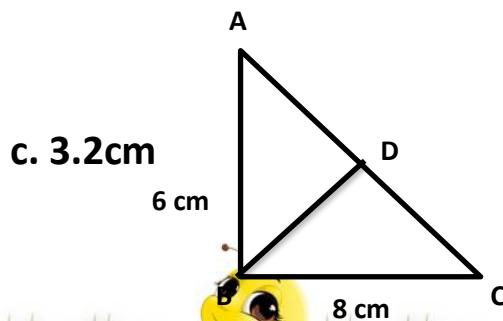
2) Area of ABCD = cm^2

a. 9 b. 19 c. 12

75) ΔABC is right at B, $D \in AC$, If $AB = 6 \text{ cm}$ and $BC = 8 \text{ cm}$

The length of BD

a. 10 cm b. 4.8 cm



76) Two triangles drawn on a common base and their vertices located

On a straight line parallel to the base are

a. different

b. equal in area

c. twice

77) Triangle with congruent bases and drawn between two parallel lines are

a. equal in area

b. double

c. different

78) The median in triangle divided its surface into two triangular

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c. twice

79) If ABC is a triangle, D is the midpoint of BC , then the area of ΔABD equal of Δ

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b. ACD

c. DBA

80) If XL is median in ΔXYZ , then the area of ΔXYZ =area of ΔXYL

a. half

b. third

c. twice

81) Two triangles have the same area and they are included between two straight lines then the two straight lines are

a. perpendicular

b. parallel

c. intersect

82) In ΔABC , if D is the midpoint of BC, then the area of ΔABD = ...

The area of ΔABC

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b. double

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b. congruent

c. parallel

84) Triangle with congruent bases on one straight line and have a commonare equal in area

a. width

b. high

c. vertex



85) If area of parallelogram ABCD 24 cm^2 , then the area of $\triangle ABE$

$$= \dots \text{cm}^2$$

a. 12

b. 6

c. 18

86) If AD is median in $\triangle ABC$, then area of $\triangle ABD$ = The area of $\triangle ABC$

a. $\frac{1}{2}$

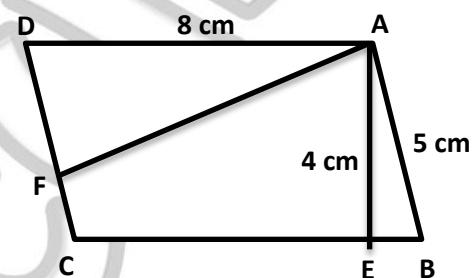
b. $\frac{1}{3}$

c. $\frac{1}{4}$

87) If ABCD is parallelogram

$AB = 5\text{cm}$, $AE = 4\text{ cm}$, $AD = 8\text{ cm}$

Then $AF = \dots \text{cm}$



a. 5.4

b. 3.2

c. 6.4

88) In the opposite figure

The area of $\triangle ABC = 100 \text{ cm}^2$

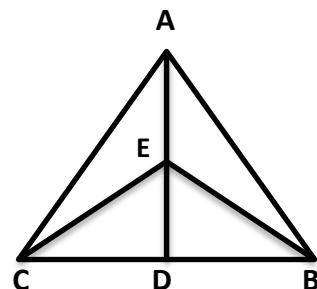
D is midpoint of BC, E is midpoint of AD

The area of $\triangle EBC$

a. 20 cm^2

b. 50 cm^2

c. 25 cm^2



Prep 2



01030937563

Choose the correct Answer:

1.	$4 X^2 - 12 X + 9 = \dots$ A) $(2 X - 3)^2$ B) $(2 X - 5)^2$ C) $(3 X + 2)^2$ D) $(3 X + 5)^2$			
2.	If: $9 X^2 + 24 X + K$ is perfect square trinomial, then $K = \dots$ A) 1 B) 16 C) 49 D) 9			
3.	If: $X = 2$, $y = 3$, then: $X^2 + 2 X y + y^2 = \dots$ A) 9 B) 16 C) 25 D) 36			
4.	If: $(X + 1)$ is a factor of: $X^2 - 2 X - 3$, then the other factor is \dots A) $X + 2$ B) $X - 1$ C) $X + 2$ D) $X - 3$			
5.	$2 X^2 - 20 X + 25 = \dots$ A) $(2 X - 3)^2$ B) $(2 X - 5)^2$ C) $(3 X + 2)^2$ D) $(3 X + 5)^2$			
6.	If: $25 X^2 + 30 X + K$ is perfect square trinomial, then $K = \dots$ A) 1 B) 16 C) 49 D) 9			
7.	If $X = 4$, $y = 2$, then: $X^2 + 2 X y + y^2 = \dots$ A) 9 B) 16 C) 25 D) 36			
8.	If: $(X - 1)$ is a factor of: $X^2 + 3 X - 4$, then the other factor is \dots A) $X + 4$ B) $X - 5$ C) $X + 3$ D) $X - 6$			
9.	$9 X^2 + 12 X + 4 = \dots$ A) $(2 X - 3)^2$ B) $(2 X - 5)^2$ C) $(3 X + 2)^2$ D) $(3 X + 5)^2$			
10.	The middle term of the expression: $(3 X + 4)^2$: A) $24 X$ B) $10 X$ C) $20 X$ D) $12 X$			
11.	$a^2 + 2 a b + b^2 = 9$, then $a + b = \dots$ A) ± 3 B) ± 4 C) ± 5 D) ± 6			
12.	If: $(X + 2)$ is a factor of: $X^2 + 5 X + 6$, then the other factor is \dots A) $X + 4$ B) $X - 5$ C) $X + 3$ D) $X - 6$			
13.	$9 X^2 + 30 X + 25 = \dots$ A) $(2 X - 3)^2$ B) $(2 X - 5)^2$ C) $(3 X + 2)^2$ D) $(3 X + 5)^2$			

14. The middle term of the expression: $(X + 5)^2$ is
 A) $24X$ B) $10X$ C) $20X$ D) $12X$

15. $a^2 + 2ab + b^2 = 25$, then $a + b =$
 A) ± 3 B) ± 4 C) ± 5 D) ± 6

16. If: $(X - 2)$ is a factor of: $X^2 - 7X + 10$, then the other factor is
 A) $X + 4$ B) $X - 5$ C) $X + 3$ D) $X - 6$

17. $(X + 1)^2 =$
 A) $X^2 + 9$ B) $X^2 - 9$ C) $X^2 + 2X + 1$ D) $X^2 + 4X + 4$

18. The middle term of the expression: $(3X - 2)^2$ is
 A) $24X$ B) $10X$ C) $20X$ D) $-12X$

19. $a^2 + 2ab + b^2 = 16$, then $a + b =$
 A) ± 3 B) ± 4 C) ± 5 D) ± 6

20. If: $(X + 3)$ is a factor of: $X^2 - 3X - 18$, then the other factor is
 A) $X + 4$ B) $X - 5$ C) $X + 3$ D) $X - 6$

21. $(X - 2)^2 =$
 A) $X^2 + 9$ B) $X^2 - 9$ C) $X^2 + 6X + 9$ D) $X^2 - 4X + 4$

22. If: $X^2 + 2X + K$ is perfect square trinomial, then $K =$
 A) 1 B) 16 C) 49 D) 9

23. If: $4X^2 + 28X + K$ is perfect square trinomial, then $K =$
 A) 1 B) 16 C) 49 D) 9

24. The middle term of the expression: $(2X - 5)^2$ is
 A) $24X$ B) $10X$ C) $-20X$ D) $12X$

25. $a^2 + 2ab + b^2 = 36$, then $a + b =$
 A) ± 3 B) ± 4 C) ± 5 D) ± 6

26. $X^2 + ax - 6$ can be factorized, then negative values of (a) are =
 A) $\{-14, -2\}$ B) $\{-5, -1\}$ C) $\{-9, -3\}$ D) $\{-2\}$

27. $(X - 3)^2 =$
 A) $X^2 + 9$ B) $X^2 - 9$ C) $X^2 - 6X + 9$ D) $X^2 + 4X + 4$

28. $a^2 + b^2 = 7$, and $ab = 3$, then: $(a - b)^2 =$
 A) 1 B) 2 C) 3 D) 5

29. $a^2 + b^2 = 11$ and $a b = 5$, then $a - b =$
 A) ± 2 B) ± 4 C) ± 5 D) ± 1

30. $x^2 + a x - 15$ can be factorized, then negative values of (a) are =
 A) $\{-14, -2\}$ B) $\{-5, -1\}$ C) $\{-9, -3\}$ D) $\{-2\}$

31. $(x + 5)^2 =$
 A) $x^2 + 9$ B) $x^2 - 9$ C) $x^2 + 6x + 9$ D) $x^2 + 10x + 25$

32. $a^2 + b^2 = 18$, and $a b = 5$, then: $(a - b)^2 =$
 A) 1 B) 2 C) 3 D) 8

33. $a^2 + b^2 = 16$ and $a b = 6$, then $a - b =$
 A) ± 3 B) ± 2 C) ± 5 D) ± 6

34. $x^2 + a x - 10$ can be factorized, then negative values of (a) are =
 A) $\{-14, -2\}$ B) $\{-5, -1\}$ C) $\{-9, -3\}$ D) $\{-2\}$

35. If: $x^2 + kx + 25$ is perfect square trinomial, then $K =$
 A) 10 B) 12 C) 20 D) 30

36. $a^2 + b^2 = 17$, and $a b = 7$, then: $(a - b)^2 =$
 A) 1 B) 2 C) 3 D) 5

37. If: $x^2 - a = (x - 5)(x + 5)$, then $a =$
 A) 4 B) 9 C) -25 D) 25

38. If: $a + b = 3$, $a - b = 2$, then: $b^2 - a^2 =$
 A) 6 B) 8 C) -6 D) 15

39. If: $(x - 3)^2$ is one of the factors of: $(x^2 - 9)^2$, then the other factor is
 A) $(x + 1)^2$ B) $(x + 2)^2$ C) $(x + 3)^2$ D) $(x + 4)^2$

40. If: $x^2 - a = (x - 2)(x + 2)$, then $a =$
 A) 4 B) -4 C) 16 D) 25

41. If: $x^2 - y^2 = 6$ and $x - y = 3$, then $x + y =$
 A) 2 B) 18 C) 9 D) 5

42. If: $(x + 4)^2$ is one of the factors of: $(x^2 - 16)^2$, then the other factor is
 A) $(x - 1)^2$ B) $(x + 2)^2$ C) $(x + 3)^2$ D) $(x - 4)^2$

43. If: $X^2 - a = (X - 3)(X + 3)$, then $a =$
 A) 4 B) 9 C) -9 D) 25

44. If: $X^2 - y^2 = 9$ and $X - y = 1$, then $X + y =$
 A) 2 B) 18 C) 9 D) 5

45. If: $X^2 + a = (X - 3)(X + 3)$, then $a =$
 A) 4 B) 9 C) -9 D) 25

46. If: $X^2 - y^2 = 12$ and $X + y = 2$, then $X - y =$
 A) 2 B) 4 C) 3 D) 6

47. $(55)^2 - (45)^2 = 100 \times$
 A) 10 B) 20 C) 30 D) 40

48. If: $X^2 + a = (X - 4)(X + 4)$, then $a =$
 A) 4 B) 9 C) 16 D) -16

49. If: $X^2 - y^2 = 15$ and $X + y = 5$, then $X - y =$
 A) 2 B) 4 C) 3 D) 6

50. $(75)^2 - (25)^2 = 100 \times$
 A) 10 B) 20 C) 30 D) 50

51. $(\sqrt{3} + \sqrt{2})^7 (\sqrt{3} - \sqrt{2})^7 =$
 A) 1 B) 32 C) 81 D) 125

52. If: $X^2 - y^2 = 20$ and $X + y = 5$, then $X - y =$
 A) 2 B) 4 C) 3 D) 6

53. $(65)^2 - (35)^2 = 100 \times$
 A) 10 B) 20 C) 30 D) 40

54. $(2a + 3b)(2a - 3b) =$
 A) $a^2 - b^2$ B) $4a^2 - b^2$ C) $a^2 - 9b^2$ D) $4a^2 - 9b^2$

55. If: $X^2 - a = (X - 4)(X + 4)$, then $a =$
 A) 4 B) 9 C) 16 D) -16

56. If: $X^2 - y^2 = 30$ and $X - y = 6$, then $X + y =$
 A) 2 B) 18 C) 9 D) 5

57. $(a + b)(a - b) =$
 A) $a^2 - b^2$ B) $4a^2 - b^2$ C) $a^2 - 9b^2$ D) $4a^2 - 9b^2$

58. If: $X^2 + a = (X - 5)(X + 5)$, then $a =$
 A) 4 B) 9 C) -25 D) 25

59.	If: $X^2 - y^2 = 54$ and $X - y = 3$, then $X + y =$ A) 2 B) 18 C) 9 D) 5			
60.	$(a + 3b)(a - 3b) =$ A) $a^2 - b^2$ B) $4a^2 - b^2$ C) $a^2 - 9b^2$ D) $4a^2 - 9b^2$			
61.	If: $X^2 + a = (X - 2)(X + 2)$, then $a =$ A) 4 B) -4 C) 16 D) 25			
62.	If: $X^2 - y^2 = 6$ and $X + y = 3$, then $y - X =$ A) 2 B) -2 C) 3 D) 6			
63.	If: $(X + 1)^2$ is one of the factors of: $(X^2 - 1)^2$, then the other factor is A) $(X + 1)^2$ B) $(X + 2)^2$ C) $(X + 3)^2$ D) $(X + 4)^2$			
64.	$(2a + b)(2a - b) =$ A) $a^2 - b^2$ B) $4a^2 - b^2$ C) $a^2 - 9b^2$ D) $4a^2 - 9b^2$			
65.	The area of the parallelogram of base length 7 cm. and its corresponding height is 3 cm. equals cm ² . (a) 10 (b) 10.5 (c) 21 (d) 42			
66.	A parallelogram whose side lengths are 5 cm. and 7 cm. and its small height is 4 cm. , then its area = cm ² . (a) 20 (b) 28 (c) 35 (d) 170			
67.	The lengths of two adjacent sides in a parallelogram are 6 cm. , 7 cm. and the length of the greater height is 5 cm. , then its area = cm ² . (a) 30 (b) 35 (c) 42 (d) 49			
68.	The lengths of two adjacent sides of parallelogram are 6 cm. , 8 cm. and its greater height is 5 cm. , then its area cm ² . (a) 48 (b) 30 (c) 40 (d) 24			
69.	The area of the parallelogram = the area of the triangle which has the same base lying on one of two parallel straight lines including them. (a) twice (b) $\frac{1}{2}$ (c) 4 (d) same			
70.	ABCD is a parallelogram , $E \in \overline{BC}$, then the area of $\square ABCD$ The area of $\triangle EAD$ (a) the same (b) half (c) twice (d) third			
71.	The length of the base of a triangle whose area 30 cm ² and its corresponding height is 6 cm. is cm. (a) 5 (b) 10 (c) 15 (d) 20			

81. The area of the parallelogram of base length 7 cm. and its corresponding height is 3 cm. equals cm²
 (a) 10 (b) 10.5 (c) 21 (d) 42

82. The lengths of two adjacent sides in a parallelogram are 6 cm. , 7 cm. and the length of the greater height is 5 cm. , then its area = cm²
 (a) 30 (b) 35 (c) 42 (d) 49

83. The area of the parallelogram = the area of the triangle which has the same base lying on one of two parallel straight lines including them.
 (a) twice (b) $\frac{1}{2}$ (c) 4 (d) same

84. ABCD is a parallelogram , $E \in \overline{BC}$, then the area of $\square ABCD$ The area of $\triangle EAD$
 (a) the same (b) half (c) twice (d) third

85. The length of the base of a triangle whose area 30 cm^2 and its corresponding height is 6 cm. is cm.
 (a) 5 (b) 10 (c) 15 (d) 20

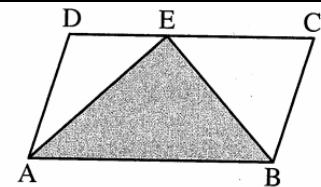
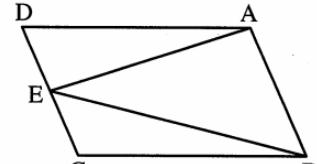
86. **In the opposite figure :**
 ABCD is a parallelogram , $E \in \overline{CD}$
 If the area of $\triangle AEB = 15 \text{ cm}^2$
 , then the area of parallelogram ABCD = cm²
 (a) 15 (b) 30 (c) 45 (d) 225

87. **In the opposite figure :**
 If the area of $\triangle ABE = 50 \text{ cm}^2$
 , then the area of $\triangle ADE +$ The area of $\triangle EBC =$
 (a) 50 (b) 100 (c) 25 (d) 75

88. If the base length of a parallelogram is 7 cm. and the corresponding height is 4 cm. , then its area =
 (a) 11 cm^2 (b) 14 cm^2 (c) 22 cm^2 (d) 28 cm^2

89. If the area of a parallelogram is 35 cm^2 and its height is 5 cm. , then the length of the corresponding base is
 (a) 5 cm. (b) 7 cm. (c) 9 cm. (d) 30 cm.

90. $\triangle ABC$, D is a midpoint of \overline{BC} , then the area of ADB = area of $\triangle ABC$
 (a) twice (b) half (c) third (d) three times



91. If ABCD is a parallelogram in which , AB = 5 cm. , BC = 10 cm. and its smaller height is 4 cm. , then its greater height =
 (a) 2 cm. (b) 4 cm. (c) 8 cm. (d) 10 cm.

92. The area of the rectangle whose dimensions are 6 cm. and 4 cm. the area of the triangle whose base length is 12 cm. and the corresponding height is 4 cm.
 (a) < (b) > (c) = (d) ≠

93. If ABCD is a parallelogram with area 100 cm^2 and $E \in \overline{AD}$, then the area of ΔEBC =
 (a) 25 cm^2 (b) 50 cm^2 (c) 100 cm^2 (d) 200 cm^2

94. The lengths of two adjacent sides of parallelogram are 6 cm. , 8 cm. and its greater height is 5 cm. , then its area cm^2
 (a) 48 (b) 30 (c) 40 (d) 24

95. The area of the parallelogram = the area of the triangle which has the same base lying on one of two parallel straight lines including them.
 (a) twice (b) $\frac{1}{2}$ (c) 4 (d) same

96. A parallelogram whose area = 50 cm^2 and the length of its base equals twice the corresponding height , then this height =
 (a) 50 cm. (b) 25 cm. (c) 10 cm. (d) 5 cm.

97. The area of the triangle is the area of the parallelogram which has a common base with it and its vertex lies on the straight line parallel to this base.
 (a) equal to (b) half (c) twice (d) quarter

98. The area of the triangle = the base length \times the corresponding height.
 (a) 2 (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) $\frac{1}{3}$

99. The ratio between the area of the parallelogram and the area of the triangle whose base is common and are included between two parallel straight lines =
 (a) 1 : 2 (b) 1 : 3 (c) 2 : 1 (d) 2 : 3

100. If the base length of a triangle is 4 cm. and the corresponding height = 3 cm. , then its area =
 (a) 6 cm^2 (b) 12 cm^2 (c) 24 cm. (d) 34 cm^2

Choose the correct answer from the given ones:

(1) If $a - b = 3$, then $6a - 6b = \dots$

(a) 2 (b) 9 (c) 18 (d) 3

(2) The expression: $x^2 - x - a$ can be factorized if $a = \dots$

(a) 3 (b) 4 (c) 5 (d) 6

(3) $x^2 - x - 12 = \dots$

(a) $(x - 3)(x + 4)$ (b) $(x - 3)(x - 4)$
(c) $(x + 3)(x - 4)$ (d) $(x - 6)(x + 2)$

(4) If $x^2 - 2x - k = (x + 3)(x - 5)$, then $k = \dots$

(a) -2 (b) -8 (c) 15 (d) 2

(5) If $x - y = 3$, $x - 2y = 5$ then $x^2 - 3xy + 2y^2 = \dots$

(a) 15 (b) 8 (c) 2 (d) -2

(6) The number which can be added to the expression : $x^2 - 11x + 15$ to be factorized is.....

(a) 1 (b) 2 (c) 3 (d) 4

(7) If $x^2 + ax - 13 = (x + 1)(x - 13)$, then $a = \dots$

(a) zero (b) 25 (c) -12 (d) 12

(8) $x^2 + 7x + c$ can be factorized if $c = \dots$

(a) 12 (b) -12 (c) 17 (d) 9

(9) The number which can be added to the expression: $2x^2 + 5x - 10$ to be factorized is

(a) -1 (b) -2 (c) -3 (d) -4

(10) If $2x^2 - cx - 3 = (2x - 1)(x + 3)$, then $c = \dots$

(a) 5 (b) -5 (c) 7 (d) -7

(11) $6x^2 - 7x - 3 = \dots$

(a) $(3x - 1)(2x - 3)$ (b) $(3x + 1)(2x - 3)$
 (c) $(3x + 1)(2x + 3)$ (d) $(3x - 1)(2x + 3)$

(12) The rectangle whose area is $(2x^2 - 3x - 5)$ cm.² and one of its dimensions is $(x + 1)$ cm., the second dimension is \dots cm.

(a) $(x - 5)$ (b) $(2x - 5)$ (c) $(2x + 5)$ (d) $(2x - 3)$

(13) If $x^2 + kx + 16$ is a perfect square, then $k = \dots$

(a) 4 (b) ± 4 (c) ± 8 (d) 1

(14) If $x^2 - 2xy + y^2 = 25$, then $x - y = \dots$

(a) 25 (b) -5 (c) 5 (d) ± 5

(15) $5x^2 - 8xy - 4y^2 = \dots$

(a) $(5x + 2y)(x - 2y)$ (b) $(5x - 2y)(x + 2y)$
 (c) $(5x - 4)(x + y)$ (d) $(x - 4y)(5x + y)$

(16) If $a^2 + b^2 = 11$, $ab = 5$, then $a - b = \dots$

(a) 6 (b) ± 1 (c) 1 (d) -1

(17) If $(x + 1)$ is a factor of the expression: $5x^2 - 2x - 7$, then the

other factor is

(a) $(5x - 7)$ (b) $(5x + 7)$ (c) $(x + 7)$ (d) $(x - 7)$

(18) If $x = 2$, $y = 4$, then $x^2 + 2xy + y^2 =$

(a) 2 (b) 4 (c) 6 (d) 36

(19) The expression $x^2 + 7x + a$ can be factorized if $a =$

(a) 8 (b) 10 (c) 18 (d) 49

(20) The expression $x^2 - 3x + c$ can be factorized when $c =$

(a) 1 (b) 2 (c) 4 (d) 6

(21) For the expression $x^2 - x - k$ can be factorized then $k \neq$

(a) 12 (b) 30 (c) 6 (d) 8

(22) If the expression $x^2 + ax + 2$ can be factorized, then a may be

(a) 1 (b) 2 (c) 3 (d) 4

(23) If the expression $x^2 + bx - 10$ can be factorized, then b may be

(a) 3 (b) 2 (c) 1 (d) -1

(24) If the expression $x^2 - cx + 12$ can be factorized, then c may be

(a) -1 (b) 4 (c) 7 (d) 1

(25) The number which can be added to the expression $x^2 - 8x + 5$ to be factorized is

(a) 1 (b) 2 (c) 4 (d) 5

(26) If $x^2 + kx + 25$ is a perfect square, then $k = \dots$

(a) 5 (b) 10 (c) ± 10 (d) ± 5

(27) If the expression $x^2 + ax + 16$ is a perfect square, then $a = \dots$

(a) zero (b) ± 16 (c) ± 4 (d) ± 8

(28) If the expression $x^2 + 14x + b$ is a perfect square, then $b = \dots$

(a) 2 (b) 7 (c) 14 (d) 49

(29) The value of k which makes the expression $16x^2 - 24x + k$ a perfect square is \dots

(a) 6 (b) 9 (c) 12 (d) 24

(30) The value of c which makes the expression $c x^2 + 10x + 1$ a perfect square is \dots

(a) 25 (b) 10 (c) 9 (d) 5

(31) If the expression $a x^2 - 40x + 25$ is a perfect square when $a = \dots$

(a) 2 (b) 4 (c) 9 (d) 16

(32) If the expression $c + 3x + \frac{1}{4}$ is a perfect square then $c = \dots$

(a) 9 (b) $\frac{9}{4}x^2$ (c) $9x^2$ (d) $4x^2$

(33) If $x = 6, y = 4$, then $x^2 - 2xy + y^2 = \dots$

(a) 2 (b) 4 (c) 10 (d) 100

(34) If the area of a parallelogram is 40 cm^2 . and its base length is 5cm , then the corresponding height to this base = $\dots \text{cm}$.

(a) 16 (b) 8 (c) 200 (d) 5

(35) The lengths of two adjacent sides in a parallelogram are 5 cm. and 7 cm. and its smaller height is 4 cm. , then its area =.....cm.²

(a) 20 (b) 10 (c) 28 (d) 14

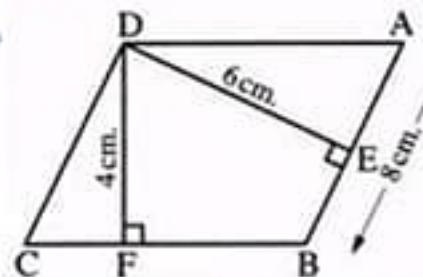
(36) A parallelogram whose area is 8 cm.² and its base length equals half its height ,then its height =..... cm.

(a) 4 (b) 8 (c) 2 (d) 16

(37) In the opposite figure :

Area of \square ABCD =cm.²

(a) 48 (b) 24 (c) 32 (d) 36



(38) The base length of a parallelogram is 12 cm. and its area = 60cm.² , then the corresponding height to this base =cm.

(a) 2 (b) 5 (c) 4 (d) 6

(39) The area of the parallelogram the area of the triangle which has the same base and is included with it between two parallel straight lines.

(a) equal (b) quarter (c) twice (d) half

(40) The triangle whose height = 9 cm. and its base equals 6 cm. long , its area = cm.²

(a) 18 (b) 54 (c) 13.5 (d) 27

(41) A parallelogram ,the lengths of two adjacent sides in it are 6 cm. and 8 cm. and its greatest height is 5 cm. , its area =cm.²

(a) 40 (b) 30 (c) 48 (d) 24

(42) If the base length of a parallelogram is 7 cm. and the corresponding Height is 4 cm. , then its area =
(a) 11cm.² (b) 14cm.² (c) 22 cm.² (d) 28 cm.²

(43) If the area of a parallelogram is 35 cm².and its height is 5cm. ,then the length of the corresponding base is
(a) 5cm. (b) 7cm. (c) 9cm. (d) 30cm.

(44) If the area of a parallelogram is 50cm².and its base length =10cm. ,than the corresponding height of this base =.....
(a) 500cm. (b) 5cm. (c) 250cm. (d) 100cm.

(45) If the lengths of two adjacent sides of a parallelogram are 8cm. and 10 cm. and its greater height is 5 cm. , then its area =.....
(a) 80cm². (b) 50cm². (c) 40cm². (d) 18cm².

(46) If ABCD is a parallelogram in which ,AB = 5 cm. ,BC = 10 cm. and its smaller height is 4 cm. ,then its greater height =.....
(a) 2cm. (b) 4cm. (c) 8 cm. (d) 10 cm.

(47) A parallelogram whose area = 50 cm². and the length of its base equals twice the Corresponding height ,then this height =.....
(a) 50cm. (b) 25cm. (c) 10cm. (d) 5cm.

(48) The area of the triangle is the area of the parallelogram which has a common base with it and its vertex lies on the straight line parallel to this base.
(a) equal to (b) half (c) twice (d) quarter

(49) The area of the triangle = the base length x the corresponding height

(a) 2 (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) $\frac{1}{3}$

(50) The ratio between the area of the parallelogram and the area of the triangle whose base is common and are included between two parallel straight lines =

(a) 1:2 (b) 1:3 (c) 2:1 (d) 2:3

(51) If the base length of a triangle is 4 cm. and the corresponding height = 3 cm. ,then its area =

(a) 6cm^2 . (b) 12cm^2 . (c) 24cm^2 . (d) 34cm^2 .

(52) The triangle whose base length is 12 cm. and its area is 48 cm^2 ., the corresponding height =

(a) 3cm. (b) 4 cm. (c) 6 cm. (d) 8 cm.

(53) If the area of the triangle is 42 cm^2 . and its height = 7 cm. then the length of the corresponding base =

(a) 15 cm. (b) 12 cm. (c) 8 cm. (d) 4 cm.

(54) The area of a right-angled triangle in which the lengths of the sides of the right angle are 6 cm. and 9 cm. equals

(a) 54 cm^2 . (b) 60 cm^2 . (c) 27 cm^2 . (d) 15cm^2 .

(55) The area of the rectangle whose dimensions are 6 cm. and 4 cm. the area of the triangle whose base length is 12 cm. and the corresponding height is 4 cm.

(a) <

(b) >

(c) =

(d) ≠

(56) If ABCD is a parallelogram with area 100 cm^2 . and $E \in \overline{AD}$, then the area of $\triangle EBC = \dots$

(a) 25 cm^2 .(b) 50 cm^2 .(c) 100 cm^2 .(d) 200 cm^2 .

AHMED SHAMEKH

PreP ٢

Mr / AhMed Shamekh

١	18	$\left\{ \begin{array}{l} \boxed{10} -5 \\ \boxed{11} (3x+1)(2x-3) \\ \boxed{12} (2x-5) \\ \boxed{13} \pm 8 \\ \boxed{14} \pm 5 \\ \boxed{15} (5x+2y)(x-2y) \\ \boxed{16} \pm 1 \\ \boxed{17} (5x-7) \\ \boxed{18} 36 \\ \boxed{19} 1^{\circ} \\ \boxed{20} 2 \end{array} \right.$
٢	6	
٣	$(x+3)(x-4)$	
٤	15	
٥	15	
٦	3	
٧	-12	
٨	12	
٩	-2	

21	8	34	8	48	half
22	3	35	28	49	$\frac{1}{2}$
23	3	36	4	50	2:1
24	7	37	48	51	6cm^2
25	2	38	5	52	8cm
26	± 10	39	twice	53	12cm
27	± 8	40	27	54	27cm^2
28	49	41	30	55	=
29	9	42	28cm^2	56	50cm^2
30	25	43	4cm	ملاقط	
31	16	44	5cm	أجزاء	
32	$9x^2$	45	40cm^2	النهاية	
33	4	46	8cm	موجود	
		47	5cm	area	
				النقطة	

Choose the correct answer from the given ones:

(1) If $x^2 - y^2 = 16$, $x + y = 8$, then $x - y = \dots\dots$
(a) 2 (b) 1 (c) 128 (d) 64

(2) If the expression: $x^2 + 7x + k$ can be factorized, then $k = \dots\dots$
(a) 16 (b) -12 (c) 30 (d) 6

(3) The expression: $4x^2 + k + 25y^2$ is a perfect square when $k = \dots\dots$
(a) 20 (b) $10xy$ (c) $20xy$ (d) $\pm 20xy$

(4) If $a + b = 8$, $b - a = -5$, then $a^2 - b^2 = \dots\dots$
(a) -40 (b) 40 (c) 13 (d) -13

(5) $x^2 - \dots\dots = (x - 7)(x + 7)$
(a) 7 (b) 49 (c) -49 (d) -7

(6) If $x^2 + 2xy + y^2 = 9$, then $x + y = \dots\dots$
(a) 9 (b) 3 (c) ± 3 (d) ± 9

(7) If $x^2 - a = (x - 3)(x + 3)$, then $a = \dots\dots$
(a) 3 (b) -3 (c) 9 (d) -9

(8) If $x + 2y = 3$, $x^2 - 4y^2 = 21$, then $x - 2y = \dots\dots$
(a) 14 (b) 9 (c) 7 (d) 6

(9) $x^2 - y^2 = 24$, $x + y = 8$, then $3x - 3y = \dots\dots$
(a) $\frac{1}{3}$ (b) 3 (c) 9 (d) 16

(10) If $a - b = 7$, $a + b = 5$, then $2a^2 - 2b^2 = \dots\dots$
(a) 2 (b) 12 (c) 35 (d) 70

(11) If $x^2 - y^2 = 16$, $y - x = 2$, then $x + y = \dots$
(a) 4 (b) 8 (c) -8 (d) 2

(12) If $a + b = 5$, $a - b = 4$, then $b^2 - a^2 = \dots$
(a) -20 (b) -1 (c) 9 (d) 20

(13) If $(25)^2 - (15)^2 = 10x$, then $x = \dots$
(a) 40 (b) 30 (c) 20 (d) 10

(14) $(x - y)(x + y)(x^4 - 2x^2y^2 + y^4) = \dots$
(a) $x^6 - y^6$ (b) $(x - y)^3(x + y)^3$
(c) $(x^3 - y^3)(x^3 + y^3)$ (d) $(x^2 + y^2)(x^2 - y^2)$

(15) If $x^2 + l - 4 = (x - 2)(x + 2)$, then $l = \dots$
(a) zero (b) 2 (c) 4 (d) 8

(16) If $x^2 - m = (x - 7)(x + 7)$, then $m = \dots$
(a) 7 (b) -7 (c) 49 (d) -49

(17) The expression: $ax^2 - 36x + 36$ is a perfect square when $a = \dots$
(a) 3 (b) 6 (c) 9 (d) 4

(18) If $x^2 - kx + 12 = (x - 3)(x - 4)$, then $k = \dots$
(a) 1 (b) 5 (c) 12 (d) 7

(19) If $2x^2 - 3x - 35 = (2x + a)(x - 5)$, then $a = \dots$
(a) 5 (b) 7 (c) 10 (d) 2

(20) If $a + 5b = 3$, $a^2 - 25b^2 = 12$, then $a - 5b = \dots$
(a) 9 (b) 16 (c) 3 (d) 4

(21) If $x^2 + kx + 64$ is a perfect square, then $k = \dots$
(a) 8 (b) 16 (c) 32 (d) 64

(22) If $x^2 + kx + 49$ is a perfect square, then $k = \dots$
(a) 7 (b) -7 (c) ± 7 (d) ± 14

(23) If $x + 2y = 4$, $x^2 - 4y^2 = 20$, then $x - 2y = \dots$
(a) 4 (b) 0 (c) 5 (d) 80

(24) If the expression: $x^2 + 16x + b$ is perfect square, then $b = \dots$
(a) 8 (b) 25 (c) 16 (d) 64

(25) If the expression: $x^2 + 5x + a$ can be factorized, then a may be equal to \dots
(a) 6 (b) 8 (c) 10 (d) 12

(26) If $2x^2 + cx - 3 = (2x + 3)(x - 1)$, then $c = \dots$
(a) 3 (b) 1 (c) -2 (d) 4

(27) If $x^2 - 3x + a = (x - 5)(x + 2)$, then $a = \dots$
(a) -3 (b) 5 (c) -10 (d) 4

(28) The two triangles drawn on a common base and their vertices located on a straight line parallel to the base are \dots
(a) equal in Area (b) equal in length (c) Not equal in Area

(29) Triangles with congruent bases and drawn between two parallel line are \dots
(a) equal in Area (b) equal in length (c) Not equal in Area

(30) The median in the triangle divides its surface into \dots
(a) Two triangle equal in surface in Area (b) Not equal in Area (c) equal in measure

(31) If ABC is a triangle, D is the midpoint of \overline{BC} ,then :
The area of $\triangle ABD$ = the area of \triangle

(a) $\triangle ABC$ (b) $\triangle ACD$ (c) $\triangle ADC$

(32) If \overline{XL} is a median in $\triangle XYZ$,then the area of $\triangle XYZ$ = the area of $\triangle XYL$

(a) half (b) Third (c) Twice

(33) The triangle XYZ in which $L \in \overline{YZ}$ such that $YL = \frac{1}{2} LZ$,then:
The area of $\triangle XYL$ = the area of $\triangle XYZ$

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$

1 2

HTAMTA

2 6

3 $\pm 20xy$

4 40

5 49

6 ± 3

7 9

8 4

9 9

10 70

11 -8

12 -20

13 40

14 $(x-y)^3 (x+y)^3$

15 75°

16 49

17 9

18 7

19 7

20 4

21 16

22 ± 14

23 5

24 64

25 6

26 1

27 -10

تکمیلی

28 equal
in Area

29 equal
in Area

30 two triangle

equal in
surface Area

31 $\triangle ACD$

or $\triangle ADC$

32 twice

33 $\frac{1}{3}$

حل
کروکی



Al Gebra Choose the correct answer from those given



1 $x^2 - 5x + 6 = \underline{\hspace{2cm}}$

(a) $(x+2)(x+3)$ (b) $(x-2)(x+3)$ (c) $(x-2)(x-3)$ (d) $(x+2)(x-3)$

2 If: $x + y = 7$, then: $x^2 + 2xy + y^2 = \underline{\hspace{2cm}}$

(a) 5 (b) 7 (c) 9 (d) 49

3 If: $16x^2 + kx + 9$ is a perfect square, then: $k = \underline{\hspace{2cm}}$

(a) ± 6 (b) ± 12 (c) ± 24 (d) ± 48

4 If the trinomial $x^2 + kx - 24$ can't be factorized, then: $k = \underline{\hspace{2cm}}$

(a) -2 (b) 2 (c) 3 (d) 5



Geometry Choose the correct answer from those given

5 If: the lengths of two adjacent sides of a parallelogram are 9 cm. and 6 cm. and its smaller height is 5 cm, then its greater height = $\underline{\hspace{2cm}}$ cm.

(a) 4 (b) 6 (c) 9 (d) 12

6 The area of a right - angled triangle in which the lengths of the sides of the right angle are 6 cm. and 8 cm. equals $\underline{\hspace{2cm}}$ cm.²

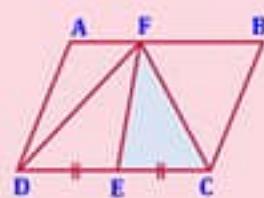
(a) 12 (b) 24 (c) 36 (d) 48

7 In The Opposite figure :

ABCD is a parallelogram its area = 96 cm.²

, then the area of $\triangle EFC$ = $\underline{\hspace{2cm}}$ cm.²

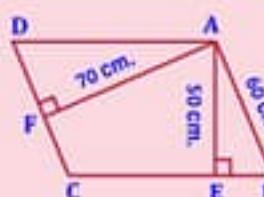
(a) 96 (b) 192 (c) 48 (d) 24



8 In The Opposite figure

ABCD is a parallelogram, then: BC = $\underline{\hspace{2cm}}$ cm.

(a) 48 (b) 84 (c) 80 (d) 42





Al Gebra Choose the correct answer from those given

1 If: $(a+b)^2 = 43$ and $a^2 + b^2 = 35$, then: $ab =$ _____

(a) 4

(b) 8

(c) 16

(d) 78

2 $(a-5)(2a-3) =$ _____(a) $a^2 - 7a - 15$ (b) $2a^2 - 7a + 15$ (c) $2a^2 - 13a + 15$ (d) $2a^2 - 13a - 15$ 3 $x^2 + x - 12 =$ _____(a) $(x-4)(x+3)$ (b) $(x+4)(x-3)$ (c) $(x+2)(x-6)$ (d) $(x-2)(x+6)$ 4 If the trinomial: $x^2 - 6x + k$ is a perfect square, then: $k =$ _____

(a) 3

(b) 6

(c) 9

(d) 36



Geometry Choose the correct answer from those given

5 If: the base length of a triangle = 10 cm. and the corresponding height 6 cm

, then its area = _____ cm.²

(a) 60

(b) 30

(c) 20

(d) 50

6 If: the ratio between the lengths of two adjacent sides of a parallelogram are 3 : 4 and its

perimeter = 28 cm. and its smaller height = 4 cm. then: its area = _____ cm.²

(a) 24

(b) 12

(c) 32

(d) 56

7 ABC is a Right angled triangle in which AB = 5 cm. , and AC = 13 cm , then its area = _____ cm.²

(a) 65

(b) 32.5

(c) 30

(d) 78

8 In The Opposite figure

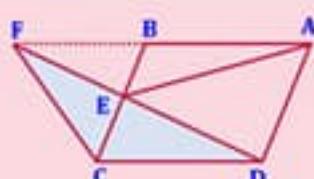
ABCD is a parallelogram , If the area of the triangle AED = 17 cm.², then the area of $\triangle FCD =$ _____ cm.²

(a) 17

(b) 34

(c) 51

(d) 68





Al Gebra Choose the correct answer from those given

1 If the trinomial $x^2 + kx - 6 = (x - 2)(x + 3)$, then : $k = \underline{\hspace{2cm}}$

(a) -1 (b) 1 (c) 2 (d) 3

2 If : $a(x + y) - b(x + y) = 15$, and $x + y = 5$, then : $a - b = \underline{\hspace{2cm}}$

(a) 3 (b) 5 (c) 9 (d) 25

3 The algebraic term which can be added to the expression : $x^2 + 2x + 6$ to be factorized is $\underline{\hspace{2cm}}$

(a) -2 (b) 2 (c) $2x$ (d) $3x$

4 $(x - y)(x + y)(x^2 + y^2)(x^4 + y^4) = \underline{\hspace{2cm}}$

(a) $x^4 + y^4$ (b) $x^4 - y^4$ (c) $x^8 - y^8$ (d) $x^8 + y^8$

GEOMETRY Complete the following

5 If : the Ratio between any side length of a triangle and its perimeter is $1:3$ then the number of its symmetrical lines = $\underline{\hspace{2cm}}$

* 3 *

6 Surfaces of two parallelograms with common base and between two parallel straight lines , one is carrying this base are $\underline{\hspace{2cm}}$

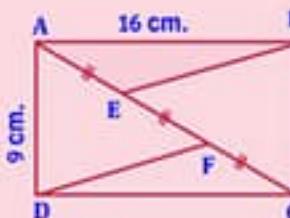
* equal in area *

7 If : the lengths of two adjacent sides of a parallelogram are 12 cm. and 8 cm. and its smaller height is 4 cm , then its greater height = $\underline{\hspace{2cm}}$ cm.

* 6 cm *

8 In The Opposite figure

ABCD is a parallelogram , its dimensions are 9 cm. and 16 cm. ,

then : the area of the triangle ABE = $\underline{\hspace{2cm}}$ cm.²* 24 cm² *



Al Gebra Choose the correct answer from those given



1 Two numbers such that their product = - 8 and their sum = - 2 are _____

(a) 2, 4 (b) 2, - 4 (c) - 2, 4 (d) - 2, - 4

2 If: $a^2 + b^2 = 12$ and $ab = 4$, then: $a - b =$ _____

(a) 2 (b) ± 2 (c) - 2 (d) 8

3 If: $(x + 1)$ is a factor of the expression: $5x^2 + 3x - 2$ then the other factor is _____

(a) $(x - 2)$ (b) $(x + 2)$ (c) $(5x + 2)$ (d) $(5x - 2)$

4 If the trinomial: $kx^2 - 12x + 4$ is a perfect square, then: $k =$ _____

(a) 2 (b) 4 (c) 9 (d) 36



Geometry Complete the following

5 The median of a triangle divides its surface into two triangular surfaces _____

(a) equal in area (b) Similar (c) congruent (d) different in area

6 ABC is a triangle, D is the midpoint of BC, then the ratio between the area of the triangle ABD and the area of the triangle ABC equals _____

(a) 2 : 1 (b) 1 : 2 (c) 1 : 1 (d) 1 : 4

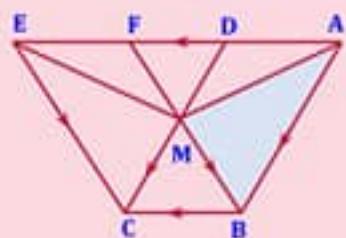
7 The area of the parallelogram _____ the area of a rectangle which has a common base with it and laying between two parallel straight lines, one carrying the base.

(a) equal to (b) half (c) twice (d) quarter

8 In The Opposite figure

If the area of the parallelogram EFBC = 120 cm.², then: the area of the triangle AMB = _____ cm.²

(a) 120 (b) 30 (c) 60 (d) 15





Al Gebra Choose the correct answer from those given

1 if: $x + \frac{1}{x} = 5$, then: $x^2 + \frac{1}{x^2} =$ _____

(a) 5

(b) 24

(c) 25

(d) 26

2 If: $(25)^2 - (15)^2 = 40x$, then: $x =$ _____

(a) 4

(b) 400

(c) 100

(d) 10

3 If: $(x + y) = 7$ and $(a - 2b) = 4$, then: $2b(x + y) - a(x + y) =$ _____

(a) 28

(b) 11

(c) -28

(d) 3

4 $(x - y)(x + y)(x^4 - 2x^2y^2 + y^4) =$ _____(a) $x^6 - y^6$ (b) $x^6 + y^6$ (c) $(x^2 - y^2)^3$ (d) $(x^2 + y^2)^3$ 

Geometry Complete the following

5 ABC is a equilateral triangle its side length = 6 cm., D \in BC, where BD = 2 DC, then the area of the triangle ABD = cm.²(a) $3\sqrt{3}$ (b) $6\sqrt{3}$ (c) $9\sqrt{3}$ (d) $\sqrt{3}$ 6 The length of the base of a triangle whose area = 30 cm.², and the corresponding height = 6 cm.

equals cm.

(a) 5

(b) 10

(c) 20

(d) 50

7 The area of the triangle _____ the area of the parallelogram which has a common base with it and
Its vertex lies on the straight line parallel to this base.

(a) equal to

(b) half

(c) twice

(d) quarter

8 In The Opposite figure

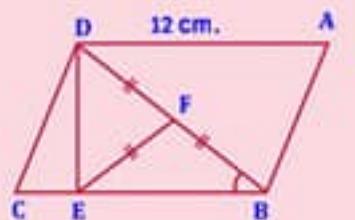
ABCD is a parallelogram its area = 96 cm.², then DE = cm.²

(a) 6

(b) 8

(c) 10

(d) 12



1 Answer the following questions :-

1	If the expression : $x^2 + 7x + a$ can be factorized, then a may be equal to (8, 10, 18, 49)
2	if $x^2 - 2x - k = (x + 3)(x - 5)$, then $k =$ (-2, -8, 15, 2)
3	if $x^2 - y^2 = 6$ and $x - y = 3$, then $x + y =$ (2, 18, 9, 5)
4	if $x^2 + kx + 25$ is a perfect square, then $k =$ (5, 10, ± 10 , ± 5)
5	the middle term of the expression $(3x + 4)^2$ is ($24x$, $10x$, $20x$, $12x$)
6	if $(x + 4)^2$ is one of the factors of $(x^2 - 16)^2$, then the other factor is ($(x - 1)^2$, $(x + 2)^2$, $(x + 3)^2$, $(x - 4)^2$)
7	if $x^2 + kx - 21 = (x + 7)(x - 3)$, then $k =$ (-4, 4, 8, 20)
8	$4x^2 - 12x + 9 =$ ($(2x - 3)^2$, $(2x - 5)^2$, $(3x + 2)^2$, $(3x + 5)^2$)
9	If $a^2 + 2ab + b^2 = 25$, then $a + b =$ (5, -5, ± 5 , 25)
10	If the expression $x^2 + 14x + b$ is a perfect square, then $b =$ (2, 7, 14, 49)
11	if $x = 2$, $y = 3$, then $x^2 + 2xy + y^2 =$ (9, 16, 25, 36)
12	If $a - b = 7$, $a + b = 5$, then $2a^2 - 2b^2 =$ (2, 12, 35, 70)
13	if $a^2 + b^2 = 7$ and $ab = 3$ then $(a - b)^2 =$ (1, 2, 3, 5)
14	The rectangle whose area is $(2x^2 - 3x - 5) \text{ cm}^2$ and one of its dimensions is $(x + 1) \text{ cm}$, then the second dimension is cm ($(x - 5)$, $(2x - 5)$, $(2x + 5)(2x - 3)$)
15	$9x^2 + 30x + 25 =$ ($(2x - 3)^2$, $(2x - 5)^2$, $(3x + 2)^2$, $(3x + 5)^2$)

16	<i>if</i> $x^2 + a = (x - 2)(x + 2)$, <i>then</i> $a = \dots$	(-4, 9, -9, 4)
17	$(65)^2 - (35)^2 = 100 \times \dots$	(10, 20, 30, 40)
18	<i>if</i> $x^2 - y^2 = 6$ and $x + y = 3$, <i>then</i> $y - x = \dots$	(2, -2, 3, 6)
19	$(2a + 3b)(2a - 3b) = \dots$	($a^2 - b^2$, $4a^2 - b^2$, $a^2 - 9b^2$, $4a^2 - 9b^2$)
20	<i>The value of a which makes the expression a</i> $x^2 + 12x + 9$ <i>a perfect Square is</i> \dots	(3, 4, 9, 16)
21	<i>if</i> $x - 2y = 3$, $x^2 - 4y^2 = 21$, <i>then</i> $x + 2y = \dots$	(4, 9, 7, 6)
22	$x^2 - k = (x - 3)(x + 3)$ <i>then</i> $k = \dots$	(3, -3, 9, -9)
23	<i>If</i> $x^2 - y^2 = 16$, $y - x = 2$ <i>then</i> $x + y = \dots$	(4, 8, -8, 2)
24	$(x + 2)^2 = \dots$	($x^2 + 4$, $x^2 - 4$, $x^2 + 4x + 4$, $x^2 - 4x + 4$)
25	<i>If</i> $x^2 + c - 4 = (x - 2)(x + 2)$, <i>then</i> $c = \dots$	(0, 2, 4, 8)
26	<i>if</i> $x^2 - y^2 = 24$, $x + y = 8$, <i>then</i> $3x - 3y = \dots$	($\frac{1}{3}$, 3, 9, 16)
27	<i>The expression</i> $x^2 + ax + 2$ <i>can be factorized</i> , <i>then</i> $a = \dots$	(1, 2, 3, 4)
28	<i>if</i> $(x + 1)$ <i>is a factor of</i> $x^2 - 2x - 3$, <i>then the other factor is</i> \dots	($x + 2$, $x - 1$, $x + 3$, $x - 3$)
29	<i>if</i> $x - y = 3$, $x - 2y = 5$, <i>then</i> $x^2 - 3xy + 2y^2 = \dots$	(15, 8, 2, -2)
30	<i>if</i> $(a - b) = 1$ and $(x + y) = -3$, <i>then</i> $a(x + y) - b(x + y) = \dots$	

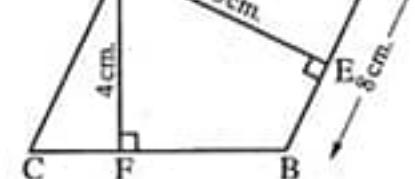
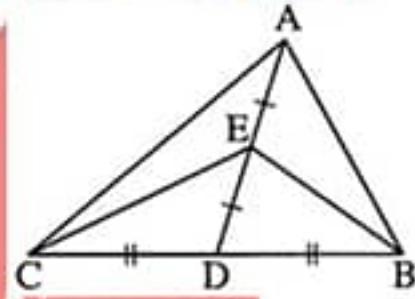
31	The rectangle whose area is $(x^2 - 7x + 6)$ square unit and its length is $(x - 6)$ length unit, then its width is length unit
32	if $(x - 2)$ is a factor of the expression $2x^2 - 7x + 6$, then the other factor is
33	$if a^2 + k + 6 = (a - 3)(a - 2)$, then $k = \dots$
34	$x^2 - x = x(\dots)$

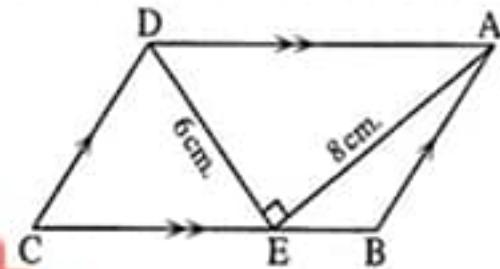
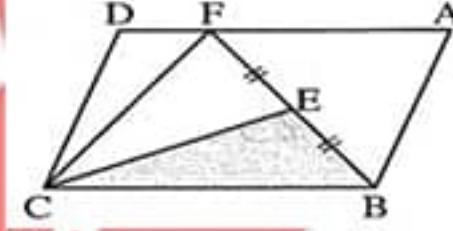
Factorize each of the following expressions :

1	$x^2 + 11x + 10 = \dots$
2	$x^2 - 7x + 12 = \dots$
3	$x^2 - 8x - 20 = \dots$
4	$5x^2 - 10x - 15 = \dots$
5	$3x^2 + 18x - 48 = \dots$
6	$9x^2 + 12x + 4 = \dots$
7	$2x^2 + 4xy + 2y^2 = \dots$
8	$x^2 - 9y^2 = \dots$
9	$\frac{1}{2}x^2 - 2 = \dots$
10	$-9x^2 + 25 = \dots$
11	$x^4 - 16 = (x^2 + 4)(x - 2)(\dots)$

1 Answer the following questions :-

1	<i>if $ABCD$ is a parallelogram in which, $AB = 5 \text{ cm}$, $BC = 10 \text{ cm}$. and its smaller height is 4 cm, then its greater height = cm</i> <i>(2 , 4 , 8 , 10)</i>
2	<i>The base length of a parallelogram is 12 cm and its area = 60 cm^2, then the corresponding height to this base = cm</i> <i>(2 , 5 , 4 , 6)</i>
3	<i>the area of the parallelogram the area of the triangle which has the same base and is included with it between two parallel straight lines</i> <i>(equal , quarter , twice , half)</i>
4	<i>if the area of $\triangle ABC = 100 \text{ cm}^2$, D is the midpoint of BC, E is the midpoint of AD then the area of $\triangle EBC = \text{ cm}^2$</i> <i>(75 , 50 , 25 , 35)</i>
5	<i>The ratio between the area of the parallelogram and the area of the triangle whose base is common and are included between two parallel straight lines = $(1 : 2 , 1 : 3 , 2 : 1 , 2 : 3)$</i>
6	<i>the base length of the triangle whose area is 30 cm^2 and height $6 \text{ cm} = \text{ cm}$</i> <i>(15 , 5 , 10 , 30)</i>
7	<i>a Parallelogram whose area = 50 cm^2 and the length of its base equals twice the corresponding height, then this height = $(25 \text{ cm} , 50 \text{ cm} , 10 \text{ cm} , 5 \text{ cm})$</i>
8	<i>The area of the triangle is the area of the parallelogram which has a common base with it and its vertex lies on the straight line parallel to this base</i> <i>(equal to , half , twice , quarter)</i>
9	<i>the area of the parallelogram $ABCD = \text{ cm}^2$</i> <i>(32 , 48 , 24 , 36)</i>



10	<p><i>the area of the parallelogram</i> $ABCD = \dots \text{cm}^2$ $(32, 48, 24, 36)$</p>	
11	<p><i>if ABCD is a parallelogram whose area is 50 cm^2, $E \in AD$, then the area of $\triangle EBC = \dots \text{cm}^2$</i> $(100, 50, 25, 12.5)$</p>	
12	<p><i>if $\triangle ABC$ is an equilateral triangle is $16\sqrt{3} \text{ cm}^2$ and height is $4\sqrt{3} \text{ cm}$, then its perimeter = $\dots \text{cm}$</i> $(8, 24, 16, 12)$</p>	
13	<p><i>the two triangles drawn on a common base their vertices located on a straight line parallel to the base are (congruent, equal in area, similar, equal in perimeter)</i></p>	
14	<p><i>ABCD is a parallelogram E is the midpoint of BF then the area of $\triangle BEC$ = the area of the parallelogram ABCD</i></p>	
15	<p><i>the area of the right angled triangle whose right angle sides are of length 6 cm and 9 cm. equals $\dots \text{cm}^2$</i> $(54, 108, 27, 18)$</p>	
16	<p><i>the area of parallelogram whose length of its base 6 cm. and its corresponding height of this base 4 cm. equals $\dots \text{cm}^2$</i> $(12, 20, 24, 48)$</p>	
17	<p><i>the length of two adjacent sides in a parallelogram are 5 cm and 7 cm and its smaller height is 4 cm., then its area = $\dots \text{cm}^2$</i> $(20, 10, 28, 14)$</p>	
18	<p><i>the triangle whose base length is 6 cm, and its area is 24 cm^2, the corresponding height = $\dots \text{cm}$</i> $(18, 4, 8, 3)$</p>	
19	<p><i>the triangle whose height = 9 cm. and its base equal 6 cm., its area = $\dots \text{cm}^2$</i> $(54, 18, 13.5, 27)$</p>	

20	<i>ABCD is a parallelogram, E ∈ CD, if the area of Δ AEB = 20 cm² then the area of ABCD = cm² (10 , 40 , 20 , 50)</i>
21	<i>the median of the triangle divides its surface into two triangles which are (congruent , equal in area , similar , coincide)</i>
22	<i>if the area of a parallelogram is 45 cm² and its height is 5 cm then the length of the corresponding base to this height = cm (50 , 40 , 5 , 9)</i>
23	<i>if XL is a median in Δ XYZ , then the area of Δ XYZ = the area of Δ XYL ($\frac{1}{2}$, 3 , 2 , 3)</i>
24	<i>the length of DF =</i>

